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A

SYSTEM

OF

EXERCISE AND INSTRUCTION

OF

FIELD-ARTILLERY,

INCLUDING MANŒUVRES

FOR

LIGHT OR HORSE-ARTILLERY.

U. S. Dep. of War

PUBLISHED BY THE DEPARTMENT OF WAR, UNDER THE AUTHORITY OF AN ACT OF CONGRESS OF THE 2D OF MARCH, 1829.

BOSTON:

HILLIARD, GRAY AND COMPANY.

1843.

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Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the Secretary of War be, and he is hereby, authorized and directed, to contract with HILLIARD, GRAY AND Co. of Boston, or some other person or persons, for printing, binding and delivering, sixty thousand copies of the Abstract of Infantry Tactics, including Exercises and Manœuvres of Light-Infantry and Riflemen, for the use of the Militia of the United States; also, five thousand copies of a System of Exercise and Instruction of Field-Artillery, including Manœuvres for Light or Horse-Artillery, as reported by the Secretary of War, on the eighth of January, eighteen hundred and twenty-seven, agreeably to the proposals of said HILLIARD, GRAY AND Co., made to the Secretary of War, dated on the twenty-seventh of October, eighteen hundred and twenty-seven, in their specimen marked B: and when so printed, bound and delivered, the Secretary of War is hereby directed to apportion the same among the several States and Territories, and in the District of Columbia, for the use of the Militia thereof, according to the number of the Militia in each State and Territory and the District of Columbia; and to forward to the Chief Magistrate of each State and Territory the number allowed to such State and Territory as aforesaid, to be by said Chief Magistrate distributed among the officers of the Militia of such State or Territory, for their use, and the use of their successors in office, under such rules and regulations as they may direct. And the Secretary of War will cause the number of copies apportioned to the District of Columbia to be distributed among the officers of the Militia in the District, under such rules and regulations as may be prescribed by the President of the United States.

Approved 2d of March, 1829.

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SIR,

THE Board of Officers assembled at this place, under your orders of October 5, 1826, for, among other purposes, reporting "*A System of Exercise and Instruction of Field-Artillery, including Manœuvres for Light or Horse-Artillery*," have now the honour to submit, through its Recorder, (Lieutenant Eakin,) the annexed sheets.

WINFIELD SCOTT,
Maj. Gen. and President of the Board
T. CADWALADER,
Maj. Gen. Militia.
WM. H. SUMNER,
Adj. Gen of Massachusetts.
B. DANIEL,
Adj. Gen. Militia, North Carolina.
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Lieut. Col. 1st Regt. U. S. Infantry
G. CUTLER,
Lieut. Col. 3d Infantry.
CHARLES J. NOURSE,
U. S. A.

To the

HON, JAMES BARBOUR,

Secretary of War.

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ADVERTISEMENT.

The non-commissioned officers and matrosses of the artillery, before they commence the service of their peculiar arm, are supposed to be sufficiently instructed in the *School of the Soldier*, and *School of the Company*, as detailed in the Infantry Tactics.

Those who are designed for the service of *horse-artillery*, should also be instructed in the *School of the Trooper*, as in the Cavalry Tactics.

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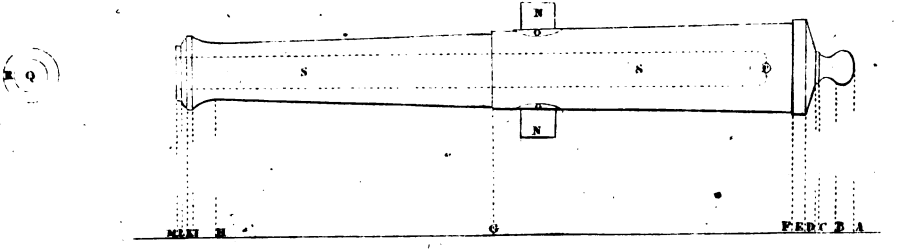
Nomenclature of the parts of field guns. Pl. I.



From A to B ... Casable
B to C ... Neck of the casable
C to D ... Fillet of the breech
D to E ... Breech
E to F ... Breech plate band
F to G ... Reinforce
G to I ... Chace
H to I ... Concave curve of the muzzle
I to K ... Plane of the muzzle

From K to L ... Convex curve of the muzzle
L to M ... Fillet of the muzzle
N N ... Trunnions
O O ... Rimbases
P ... Vent & Vent field
Q ... Mouth
R ... Lip
S S ... Bore.

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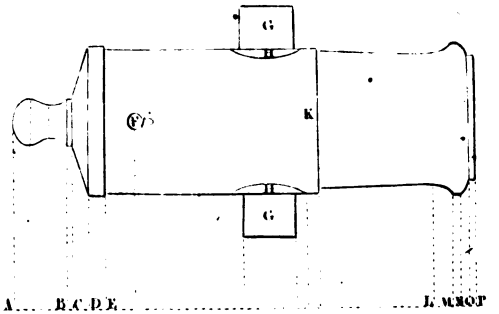

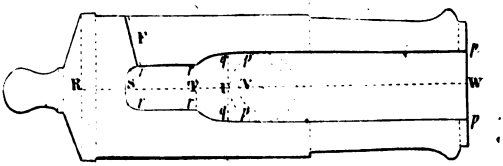

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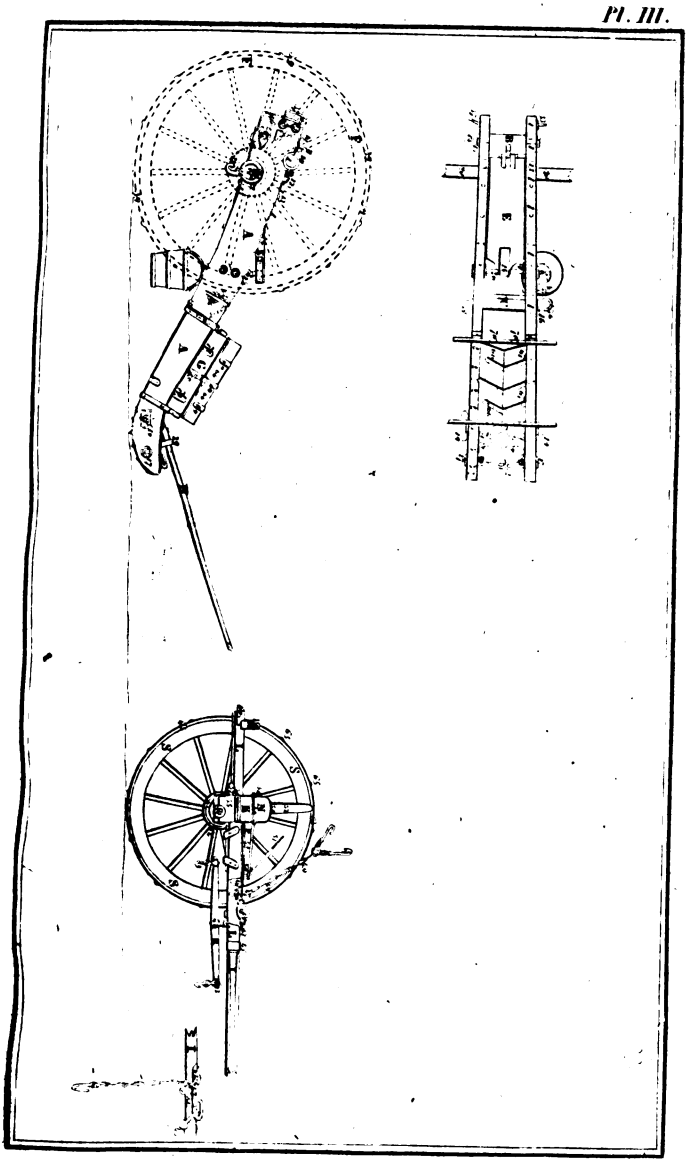

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ARTILLERY TACTICS.

NOMENCLATURE.

THE instruction of an artillerist commences with the Nomenclature of the different parts of Cannon, Gun-Carriages, Implements, and Caissons.

1st. Of the Gun.
2d. Of Field Gun-Carriages—Wood—Iron.
3d. Of the Limber of a Field Gun-Carriage, and the Ammunition-Box—Wood—Iron.
4th. Implements for Field-Pieces.
5th. Caisson—Wood—Iron.

Of the different Parts of Field Guns. (*Plate* I.)

From A to B.—Cascable.
" B to C.—Neck of the Cascable.
" C to D.—Fillet of the Breech.
" D to E.—Breech.
" E to F.—Breech-Plate Band.
" F to G.—Reinforce.
" G to H.—Chase.
" H to I.—Concave Curve of the Muzzle.
From I to K.—Plane of the Muzzle.
" K to L.—Convex Curve of the Muzzle.
" L to M.—Fillet of the Muzzle.
N. N.—Trunnions.
O. O.—Rimbases.
P.—Vent and Vent-Field.
Q.—Mouth.
R.—Lip.
S. S.—Bore.

Of the Twenty-four-Pounder Howitzer. (*Plate* II.)

AB.—Button, including the Neck.
BC.—Fillet of the Breech.
CD.—Breech.
DE.—Breech-Plate Band.
F.—Vent.
f.—Vent-Field.
G.—Trunnions.
H.—Rimbases.
K.—Reinforce.
KL.—The Chase.
LM.—Concave Curve of the Muzzle.
MN.—Plane of the Muzzle.
NO.—Convex Curve of the Muzzle.
OP.—Muzzle.
ST.—Chamber.
TU.—The Half-Round.
UV.—Diminished part of the Bore.
VW.—Cylindrical part of the Bore.

Of Field Gun-Carriages. (*Plate* III.)

WOOD PARTS.

A.—2 Flasks.
B.—1 Breast-Transom.
C.—1 Pointing-Transom.
D.—1 Trail-Transom.
E.—1 Pointing-Plate.
F.—2 Wheels.
G.—1 Ammunition-Box.
H.—2 Trail-Handspikes.
1 Water-Bucket.

Of the Limber. (*Plate* III.)

WOOD PARTS.

I.—1 Tongue or Pole.
K.—1 Axletree-Body.
L.—2 Hounds.
M.—1 Sweep-Bar.
N.—1 Bolster.
O.—1 Splinter-Bar.
P.—1 Hound-Box.
1 Swingtree-Bar.
R.—4 Swingtrees.
S.—2 Wheels.

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Iron Work of Field Gun-Carriages. (*Plate* III.)

1.—2 Trunnion-Plates.
2.—2 Talus-Plates.
3.—2 Trail-Plates.
4.—2 Axletree-Bands.
4.4.—1 Reinforce-Plate for right Flask.
5.—2 Wheel Supporting-Plates (friction.)
6.—2 Pointing-Arch Cheek-Straps.
7.—2 Trail-Arch do.
8.—2 Slider Friction-Plates (on the Flasks.)
9.—2 Small Bands for do.
10.—2 Cap-Squares, with Chains, Staples and Keys.
11.—2 Flat Head-Bolts and Nuts.
12.—2 Chain-Bolts, Nuts and Washers.
13.—2 Forward round Head-Bolts, Nuts and Washers.
14.—2 Rear do. do. do. and 1 Washer.
2 Trail Strengthening-Bolts and Nuts.
15.—1 Breast Transom-Bolt and Nut.
16.—1 Pointing Transom-Bolt and Nut.
17.—2 Trail Transom Assembling-Bolts, Nuts and Washers.
18.—2 Advancing-Hooks.
19.—2 Double Retreat-Hooks.
20.—1 Axletree, its two Arms and Eyes.
21.—2 Washer-Hooks and two Counter-Washers.
22.—2 Linch-Pins.
4 Axle Garnish-Plates.
23.—1 Pointing-Plate Hinge, its Bolt and Nut.
4 Pointing-Plates, Bolts and Nuts.
24.—1 Pointing-Plate Band and Plate.
1 Socket for Pointing-Screw Head.
25.—1 Pointing Male Screw.
26.—1 do. Female do.
27.—2 Side-Sockets to receive the Trunnions of the Female Pointing-Screw, with four Bolts, four Nuts, and three Washers.
28.—1 Upper Lunette.
1 Lower do.
29.—2 Large Pointing Ring-Bolts and Nuts.
30.—2 Small do. do. do. do.
31.—2 Washer-Plates.
32.—1 Manœuvring-Ring, Bolt, and Nut.
33.—1 Straight Sponge-Hook.
34.—1 Crooked Sponge-Hook, its Chain and Key.
35.—1 Bucket-Hook.
36.—1 Lock-Chain, Ring and Eye
37.—1 Square Handspike-Ring.
38.—1 Handspike-Hook and Key.
Round-head Nails.
Flat-head Nails.

In the twelve-pounder carriage, there are two travelling Trunnion-Plates, and two square Manœuvring-Rings. These last are fixed on the upper part of the flask, at five inches in rear of the crooked sponge-hook.

Of the Carriage-Wheels. (*Plate* III.)

39.—2 Hoop-Tires for wheels.
8 Nave-Bands.
28 Tire-Nails.
4 Composition-Boxes.

Of the Limber. (*Plate* III.)

40.—2 Pole Breast-Chains.
41.—1 Cramp for lower side of Pole.
42.—1 do. for upper side, and its Staple and Draft-Hook.
43.—1 Draft-Hook Ring and Staple.
44.—1 Ring connecting the two Cramps.
45.—1 Forward Hound-Strap.
46.—1 Hound Assembling-Bolt and Nut.
47.—1 Bridle.
48.—1 Rear Hound-Strap.
49.—1 Lashing-Chain, Rings and Hooks.
1 Rear Hound Assembling-Bolt and Nut

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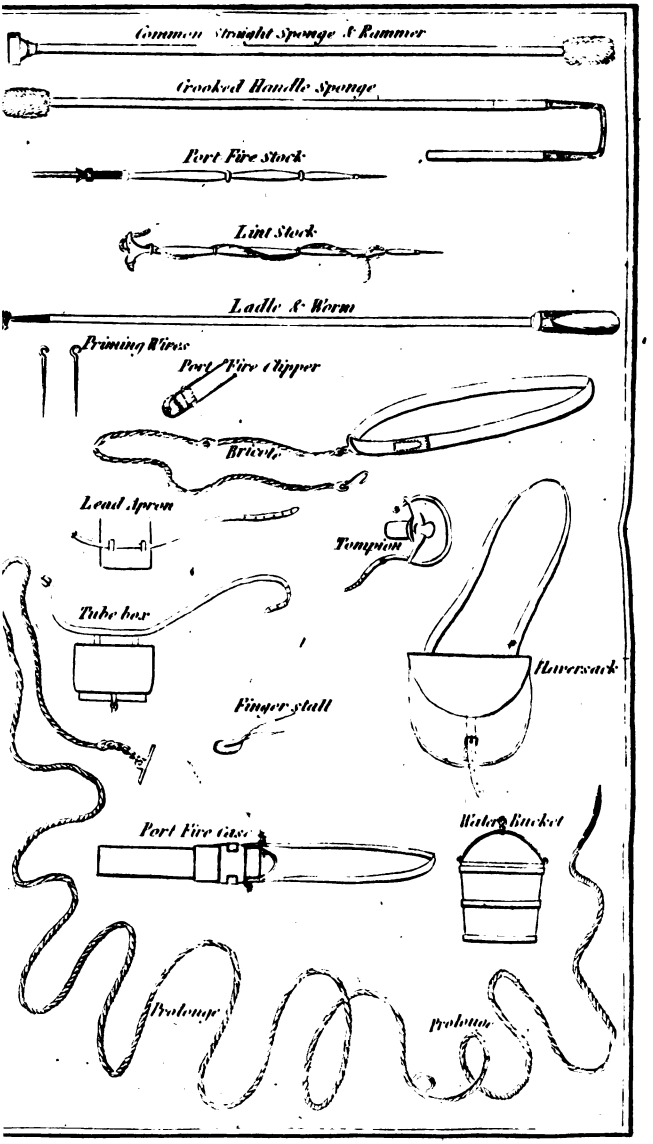

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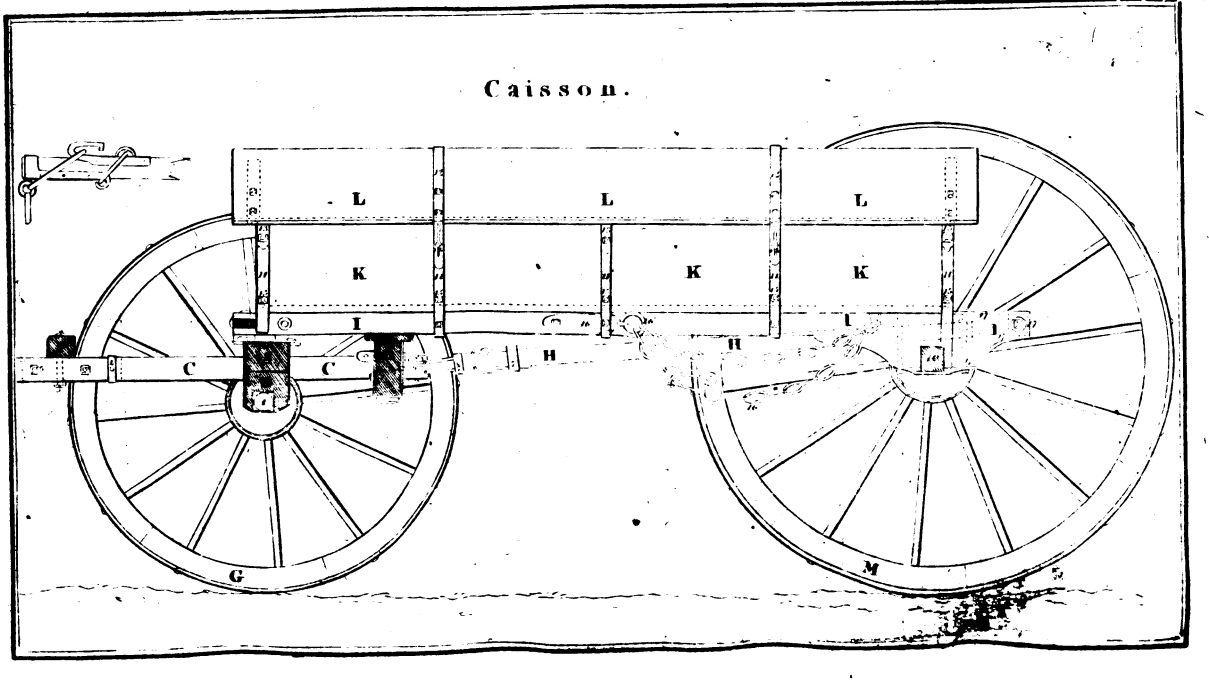
Pl: V.

Caisson.



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50.—2 Hound-Box Straps.
2 Box-Hinges and Staples.
51.—1 Hasp, Key and Staple.
52.—1 Pintle and its Key.
53.—1 Axletree, its Arms, Eyes, Washers and Counter-Washers.
54.—1 Bolster-Cap.
1 Forked Pintle-Strap.
55.—2 Hurters with Feet.
2 Linch-Pins.
2 Bolster-Bolts, Washers and Nuts.
56.—2 Stirrups, Bridles and Nuts.
57.—2 Prolonge Ring-Bolts, Nuts and Washers.
58.—2 Splinter-Bar Stays, Washers and Nuts.
59.—1 Sweep-Bar Friction-Plate.
2 Sweep-Bar Bolts, Nuts and Washers.
60.—2 Prolonge-Cleats.
61.—4 Splinter-Bar Bands and 2 Hooks
3 Swingtree-Bar Bands and 2 Hooks.
62.—12 Swingtree Bands, and 8 Hooks.
2 Splinter-Bar Bolts, Nuts and Washers.
Round-head Nails.

Of the Limber-Wheels. (*Plate* III.)

63.—2 Hoop-Tires.
64.—8 Nave-Bands.
65.—24 Tire-Nails.
4 Composition-Boxes.

Of the Ammunition-Box. (*Plate* III.)

66.—The Sheet-Iron Cover.
67.—Hinges.
68.—Knob and its Bolt, and Hasp.
69.—3 Cover-Straps.
71.—5 Supporting-Straps.
2 Bottom-Straps.
70.—4 Arm-Straps.
Bolts and Nails.

Of the Hound-Box. (*Plate* III.)

2 Bands for the Bottom.
2 Hinges and Eye-Bolts.
1 Hasp.
1 Eye-Plate.
1 Eye-Bolt for fastening the Box
1 Small Chain and Staple.

In the foregoing nomenclature no more is given than is necessary in field-service, to enable the artillerist to become acquainted with the different parts of his piece.

Of Implements for Field-Guns. (*Plate* IV.)

Rammer and Sponge.
Crooked do.
Ladle and Worm.
Priming-Wires
Portfire-Stock.
Lint-Stock.
Portfire-Case.
Tube-Box.
Ammunition-Pouch.
Finger-Stall.
Bricole.
Prolonge.
Tompion, Collar and Strap.
Portfire-Clipper.
Lead-Apron and Strap.
Water-Bucket.

Of the Caisson Limber. (*Plate* V.)

WOOD PARTS.

A.—1 Bolster.
2 Stirrups, } for the same.
2 Bolts, }
B.—1 Wooden Body of the Axletree.
C.—2 Hounds.
D.—1 Pintle-Bolster.
E.—1 Pole.
F.—1 Splinter-Bar, } same as for Limbers of field-pieces.
1 Swingtree-Bar, }
4 Swingtrees, }
G.—2 Wheels,
H.—1 Perch.

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Of the Caisson. (*Plate* VI.)

WOOD PARTS.

I.—2 Arms.
K.—1 Body of the Caisson.
3 Principal Partitions.
L.—1 Lid of the Caisson. (*Pl.* V.)
M.—2 Wheels, same as those of Field-Carriages.

Iron Work of the Caisson Limber. (*Plate* V.)

1.—1 Iron Axletree.
2.—2 Splinter-Bar Bolts.
3.—2 Nuts for the same.
2 Splinter-Bar Stays.
4.—2 Bands for the Hounds.
5.—2 Bolts connecting the Hounds and Pole.

The iron work on the splinter-bar, swingtree-bar, swingtrees and pole of the ammunition caisson is in every respect similar to that on the same parts of the limber of the six-pounder.

Of the Perch. (*Plate* V.)

6.—2 Straps for the fore end.
7.—2 Bands for the same.
8.—2 Bolts for the same.
9.—1 Swivel.

Of the Caisson. (*Plate* V.)

10.—1 Iron Axletree, same as that of the six-pounder.
11.—8 Plate-Straps.
12.—2 Hinge do.
13.—3 Double Squares.
14.—2 Assembling-Bolts, with Buttons.
15.—9 do. do. square Heads.
16.—1 Locking-Chain, Plate and Ring.
17.—2 Straps for the end of the Arms.
2 Stirrups (on the right side) for holding the Spare Pole.

The field caissons are all similar, with the exception of the interior divisions; these may be changed as occasion requires. (*Plate* VII. *and* VIII.)

EXERCISE OF FIELD-ARTILLERY.

The proper calibers for field service are six and twelve-pounder guns, and twenty-four-pounder howitzers. For the *service* of a gun of either of these calibers,* nine men are required, under the command of an officer or a sergeant. This number, however, is not sufficient to draw a twelve-pounder, or even a six-pounder, in heavy ground, or to advance or retreat with bricoles during a battle. It is now well established and admitted, that horses only should be used to draw the piece in action, and the prolonge for the facility of manœuvring. In a town or camp, however, it is often necessary to manœuvre with bricoles. It is therefore proper to state the number of men necessary to draw the piece.

Two assistants are attached to the six-pounder, four are added to the howitzer, and six are added to the twelve-pounder. These additional men are auxiliaries.

The nine men required for the service of a field-piece are thus denominated:—one non-commissioned officer; two gunners; and six matrosses, numbered 1 to 6.

* For guns of smaller caliber, the same number of men are required, and this manual equally applies.

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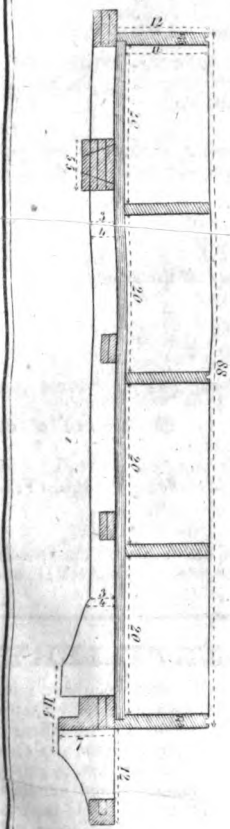
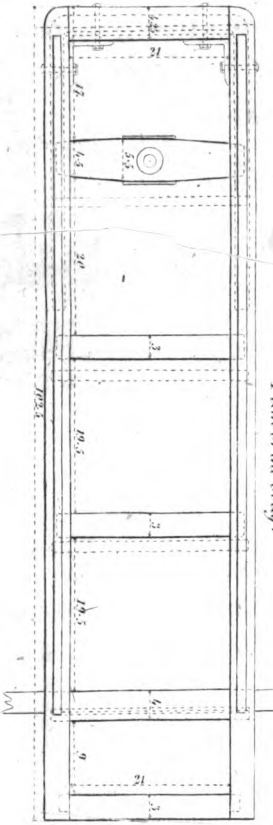
Ammunition Caisson.



Longitudinal Section.



Plan of the body.

Scale ¼ of full size.

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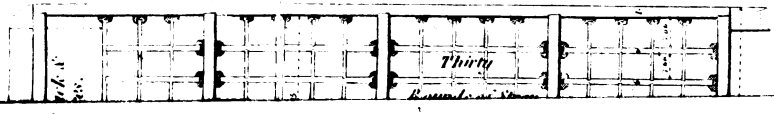
Pl. VIII.

Interiour divisions of all Field caissons.



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Ammunition Caisson.

Longitudinal Section of 12 Pdr. Howitzer.

Howitzer.

12 Pdr.

6 Pdr.

Scale $\frac{1}{4}$ of full size.

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The Equipments and Implements are,

A Rammer and Sponge.
Two Handspikes; (for twelve-pounder, or piece having travelling trunnion-plates, *four* handspikes.)
A Lint-Stock.
A Portfire-Stock.
A Portfire-Case.
A Priming-Wire.
Tube-Box.
A Finger-Stall.
Lead-Apron.
Four Ammunition-Pouches.
A Water-Bucket.
The Prolonge.
A Portfire-Clipper.
Tompion.

The custom of omitting the caisson in the School of Instruction is a bad one. The men are thereby induced to depend solely on the ammunition-box, which should be resorted to only in cases of necessity, and the ammunition taken from it should be replaced as soon as the caisson comes up. The caisson is therefore represented in *Pl.* IX. *Fig.* 2, at its position in battery, forty-five paces in rear, by the man who has charge of it. The men who supply the piece with ammunition must be practised to receive it from the caisson.

In the Manual of the Piece, or School of the Gunner, the piece is supposed to be on its limber, and without horses.

SCHOOL OF THE GUNNER.

MANUAL OF THE PIECE.

THE right and left of the piece, as relates to the station of the men, is determined by the position of a man placed in rear of the gun, and looking to the front, that is, towards the muzzle.

The reverse is the case with the limber, the right and left of which is always determined by that of the driver.

The detachment or squad for the service of a field-piece will be formed in two ranks in close order, thus:—

The chief of the piece on the right of the front rank; on his left, matross No. 5; then the gunner of the right; next, matross No. 3; then No. 1. In the rear rank, the non-commissioned officer is on the right; next him, matross No. 6; then the gunner of the left; next him, matross No. 4; and then No. 2.

The squad arriving in line in rear of the gun (in front of the pole), the chief of the piece commands,

1. *Squad.* 2. *Left face.* 3. *By file right.* 4. MARCH.

At this, the squad steps off, in the lock step, &c. Having arrived within ten paces of the gun, the chief again commands,

1. *Posts.* 2. *Right and left oblique.* 3. MARCH.

At this command, the ranks oblique to the right and left on each side of the gun, taking their positions as follows:—(*Pl.* IX. *Fig.* 1.)

The chief of the piece, on a line with the end of the pole, one pace to the right, and facing the piece.

The non-commissioned officer, at the caisson, if there be one; but should there be no caisson, his position is on the left, opposite the swingtree-bar

The matrosses Nos. 5 and 6, abreast the naves of the small wheels.

The two gunners, abreast the cascable.

The matrosses Nos. 3 and 4, abreast the naves of the large wheels.

The matrosses Nos. 1 and 2, abreast the muzzle of the gun.

The whole facing the gun and dressing, those on the right by the right, and those on the left by the left; on lines eighteen inches from the ends of the axletrees.

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If the squad arrive in front of the gun, (that is, in rear of the pole,) the gunners and matrosses take their positions by the reverse movement, viz. *facing to the right and filing to the left.* (*Pl.* IX. *Fig.* 3.)

Nos. 1 and 2 distribute the implements thus:—

To No. 1, the rammer, which he places in the sponge-hook.

To No. 2, an ammunition-pouch.

To No. 3, the lint-stock, portfire-stock and portfire-case.

To No. 4, the priming-wire, tube-box and ammunition-pouch

To the gunner of the left, the finger-stall.

To No. 5, an ammunition-pouch.

To No. 6, an ammunition-pouch.

The matrosses attached to the piece have also long bricoles, which are hung from right to left over the ammunition-pouch belt.

To disengage the gun from its limber, the chief of the piece commands,

1. *Attention.* 2. UNLIMBER.

At this command, No. 5 will move to the middle of the pole, and raise it. The gunner of the right will unhook the lashing-chain, and, aided by the gunner of the left, raise the trail. With twelve-pounders, Nos. 3 and 4 assist the gunners.

When the pintle is out of the lunette, Nos. 5 and 6 advance the limber three paces, to make room for the trail to come to the ground. The gunners then take the ammunition-box from the trail, and place it on the limber, between the hounds; which being done, the gunner of the right gives the word MARCH, at which Nos. 5 and 6 remove the limber twelve paces to the rear, inclining to the right, and then wheeling it to the left-about, the pole turned towards the gun, and covering it. (*Pl.* IX. *Fig.* 2.) At the same time, No. 4 unhooks the handspikes, passes one to No. 3, and they fix them in the pointing rings. No. 3 then fixes the portfire to the stock. No. 1 takes the sponge from its hook. With the crooked sponge No. 3 takes out the key.

If the piece has arrived on the ground in rear of the line which it is to occupy in *battery*, the word is given IN BATTERY immediately after the word UNLIMBER.

The limber is withdrawn, as above directed; and, as soon as the ammunition-box is placed on it, it is wheeled to the left, and, passing through the interval on the right of its piece, is moved twelve paces to the rear, and is then wheeled left-about. As soon as the limber has passed the piece, the gunners go to the pointing handspikes, and Nos. 1, 2, 3 and 4 to the wheels. The trail is then turned right-about, the men taking their posts as before ordered. (*Pl.* IX. *Fig.* 4.)

The piece is now prepared for firing.

POSITION OF THE GUNNERS AND MATROSSES IN BATTERY.

ON THE LEFT.

The matross No. 2, on a line with the muzzle of the gun, eighteen inches without the rim of the wheels facing the piece, and having an ammunition-pouch slung from right to left.

ON THE RIGHT.

The matross No. 1, on a line with the muzzle of the gun, eighteen inches without the rim of the wheel, facing the piece, holding the sponge-staff horizontally with both hands; the right hand, with the nails downward, near the rammer-head, above the staff; the left hand, with the nails upward, below the staff, about two feet from the sponge. In twelve-pounders, both hands are, nails upwards, below the staff.

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ON THE LEFT.

The matross No. 4, on a line with the cascable, dressing on No. 2, holding the priming-wire in the right hand, with the thumb through the ring; the tube-box buckled round the waist, and an ammunition-pouch hanging on the left side.

The gunner, on a line with the middle of the trail handspike, dressing by the left, and wearing the finger-stall on the middle finger of the left hand.

The matross No. 6 carries an ammunition-pouch: he is with the ammunition-box, and supplies No. 2 with ammunition.

The non-commissioned officer is stationed with the caisson forty-five paces in rear of the limber. Where there is no caisson, he takes position at and in rear of the ammunition-box.

ON THE RIGHT.

The matross No. 3, on a line with the cascable: he dresses on No. 1, carries the lintstock in his left hand, and the portfire-stock in his right; the portfire-case hanging on the left side.

The gunner, on a line with the middle of the trail handspike, opposite and facing the gunner of the left, and dressing by the right.

The matross No. 5 carries an ammunition-pouch: he is with the caisson, near the non-commissioned officer in charge of it, or with the ammunition-box, if there be no caisson.

The chief of the piece is about midway between the limber and the trail handspikes, observing all that passes at the gun, the limber, and the caisson.

To prepare for Firing.

The chief of the piece commands,

1. *Attention.* 2. TO ACTION.

At this command, No. 1 steps to the left, with the left foot, about eighteen inches, throwing the weight of the body on the left leg, the knee of which is bent, and the left foot nearly opposite the axletree; the right leg extended; the heels on a line parallel to the piece; the feet equally turned out, and forming an angle a little less than a right angle; the sponge-staff held horizontally in both hands, the right above, the left below the staff; the body steady, and the arms hanging without constraint.

No. 2 makes a similar movement to the right, throwing the weight of the body on the right foot, &c.

No. 3 unhooks the water-bucket, and places it under the end of the axletree; half faces to the left; plants his lintstock in the ground; lights his portfire, holding the stock in the right hand, the fire downwards, and about four inches from the ground; the arms without constraint.

No. 4 takes off the apron, &c.

The gunner on the right steps off with the right foot; places himself between the trail handspikes; directs the piece, and resumes his position by stepping off with the left foot.

The gunner of the left stands fast.

No 5 advances briskly with ammunition from the caisson, to replace No. 6.

No. 6 moves quickly with ammunition in rear of No. 2, and hands him the cartridge. He then returns to the caisson, to replace No. 5.

The chief of the piece then commands,

LOAD.

The gunner of the left, stepping off with the right foot, advances to the breech of the gun, placing the left foot opposite the vent, inside the wheel, throwing the weight of the body forward on the left leg, the knee bent; the right leg extended to the rear of the piece. He stops the vent with the middle finger of the left hand, at the moment the sponge reaches the bottom of the bore; presses hard upon it until the sponge is withdrawn

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and removes his finger when the cartridge is inserted;* seizes the elevating screw with the right hand, and gives the proper elevation. He then raises himself erect on the right foot, steps back with his left foot, and resumes his position.

No. 1 rises erect on his right leg; raises the sponge horizontally, nearly as high as his chin, extending the right arm its whole length to pass the sponge over the wheel. He makes a long step with the left foot, which he places on a line with the swell of the muzzle; he throws out the right foot about eighteen inches to the right of the left heel, and on a line with it; the feet equally turned out, the body inclined to the right. He introduces the sponge with the left hand into the bore of the gun, pushes it to the bottom with the right, the left hand sliding along the staff, raising the body erect on the left leg, parallel with the piece. He casts his eye on the vent, to see that it is stopped; turns the sponge two or three times at the bottom of the bore, and then withdraws it by a uniform motion with the right hand; the body again inclined to the right; keeping his eye on the range of the sights of the piece, to enable him to draw the sponge-staff in the line of the bore, and without jerking. He receives the staff, near the sponge, on the palm of the left hand, with which he throws the sponge-end over his right, letting the staff slide through his right hand, until it comes near the sponge-head; and, while it is thus sliding, he drops the staff, near the rammer-head, into the hollow of his left hand, between the thumb and fingers, ready to enter the rammer-head into the bore. The cartridge being placed in the bore, (by No. 2,) No. 1 pushes it home with one stroke, throwing the weight of his body upon his right arm, to force the cartridge to the bottom of the bore, and dropping the left arm by *his* side. He withdraws the rammer by a smart impulse of the right hand, seizing the staff with the same hand near the rammer-head, throwing over the sponge-head, and letting that end of the staff fall into the left hand in a horizontal position; at the same time resuming the position *To action*, by stepping back with the right foot, bringing the left nearly on the line of the axle.

No. 2 rises on the left leg, advances the right foot even with the swell of the muzzle, brings up the left, places the cartridge in the bore with the left hand, and resumes his position *To action*, by stepping back with the left foot.

No. 4 advances with the left foot, bringing up the right, pricks with the right hand, places the tube with the left, resumes his position by stepping back with the right foot, and makes the signal to No. 3 to fire, by raising his right hand above his head; at which,

No. 3 raises the right arm, without bending the wrist, and applies the flame of the portfire to the tube; taking care not to hold it directly over the vent, lest the explosion should extinguish it.

The piece being fired, No. 1, at the word *Load*, sponges, and the piece is loaded as above directed.

The fire ceases by a ruffle of the drum, or by word of command *To posts*, at which No. 3 extinguishes the portfire, and all resume the position *In battery*.

For twelve-pounders, the first on the right (No. 1) uses a sponge with the straight staff, which he holds in both hands, the nails upwards, the left near the sponge, the right midway the staff. The second on the right assists the first in sponging, the hands of both interlocked; they turn the sponge five or six times, and draw it out. No. 1 strikes it with his left hand; tosses the sponge-end over the right; lets the staff slide through his hand, and seizes it with the left hand near the rammer-head.

The first on the left (No. 2) receives the cartridge on the left, and places it with the left hand. No. 1, assisted by No. 2, rams it home with one stroke; and they resume their posts.

* On the strict observance of this rule, the safety of No. 1 depends.

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To change the Position of the Men at the Piece.

The order is given by the chief of the piece,

CHANGE.

All lay down their implements. No. 1 places the sponge-staff against the nave of the wheel, the sponge-head uppermost; No. 3 plants the portfire-stock in the ground; No. 2 replaces No. 1; No. 1 takes place of No. 3; No. 3 takes place of No. 5; No. 5 takes place of No. 6, and so on round the piece and limber.

Should it be necessary to change the gunners, the order is given,

Gunners—CHANGE.

The gunner of the right passes round the trail-handspikes to the left, and the one on the left passes over the trail of the piece to the right.

Order of replacing disabled Men, if there be no Supernumeraries

The first man disabled is replaced by No. 4, whose duty is then performed by the gunner of the left. The second man disabled is replaced by the gunner of the right. The gunner of the left then performs three duties—his own, that of the gunner of the right, and that of No. 4. The third man disabled is replaced by No. 3, and his duty is performed by No. 1, who, having loaded, places his sponge against the nave of the wheel, seizes the portfire, fires, plants the portfire-stock in the ground, and resumes his sponge. Finally, the chief of the piece will perform the duties of gunner, and the non-commissioned officer those of purveyor.

If three men, on either side of the gun, should be disabled at the same time, the 2d on the opposite side (No. 3 or 4) would replace the first, and so on.

To limber the Piece to move to the Rear.

The word is given by the chief of the piece,

1. *Attention.* 2. *Advance limber.* 3. MARCH.

No. 1 places the sponge in the sponge-hooks. No. 3 hooks the water-bucket. The gunners unfix the handspikes, and pass them to No. 4, who, with the assistance of No. 2, secures them in the square ring, and upon the hook. Nos. 5 and 6 advance with the limber, obliquing to the right, so that, turning to the left-about, the limber may be three paces in rear of the trail-transom. The gunners take the ammunition-box from the limber, place it in the recess of the flasks of the carriage, and then raise the trail, so that the carriage can be placed on the pintle. Nos. 5 and 6 back the limber, to bring the pintle under the lunette. The gunner on the right hooks the lashing-chain; and all resume their posts.

The Piece being in Battery, and required to advance.

The command is given by the chief of the piece,

1. *Attention.* 2. *Limber to the front.* 3. MARCH.

Nos. 5 and 6 advance the limber three paces in front of the muzzle of the gun, in such manner as that the left wheel of the limber shall be on a line with the right wheel of the piece, passing on the right. The gunners and matrosses step near the flasks, to permit the limber to pass. The gunners, as soon as the limber has passed, step to the trail-handspikes; the matrosses on each side, to the wheels. The muzzle is then turned to the right-about, on the right wheel, No. 2 placing his feet on the lower felloes of the right wheel, and supporting himself by the upper spokes. The trail is then fixed upon the limber, as before directed.

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Carriages for twelve-pounders are usually constructed with travelling trunnion-plates; the one being for the service of the piece, and the other, by throwing the weight more upon the limber, to relieve the carriage in travelling.

If the gun be on the travelling trunnion-plate, preparatory to the exercise of the piece its chief commands,

Prepare to change—TRUNNIONS.

Nos. 3 and 4 take off the cap-squares. No. 3 hooks the lock-chain to the highest spoke. The gunner on the left and No. 2 take out the handspikes, and give one to No. 1, one to the gunner on the right, and each retains one.

The command is then given by the chief,

Change—TRUNNIONS.

No. 2 introduces the butt-end of his handspike halfway into the bore of the gun. No. 1, and the gunner on the left, place their handspikes, one under the cascable, the other under the reinforce, and raise the piece; they are aided by Nos. 3 and 4. The gunner on the right places his handspike as a roller under the reinforce, advancing it as near as possible to the centre of the piece, the catch of the handspike passing beyond the left flask. No. 1 then takes out his handspike, and crosses it under that of No. 2, which is in the bore. No. 5 goes to the assistance of No. 2; and Nos. 3, 4 and 6 to the assistance of No. 1. All being ready, the command is given by the chief,

Steady. HEAVE.

All lift at their handspikes at the same time, with force, precaution and steadiness, letting the piece slide into the battle trunnion-plates.

Nos. 5 and 6 then resume their stations; Nos. 3 and 4 replace the cap-squares; No. 3 unlocks the wheel; Nos. 1 and 2 press upon the muzzle, while the gunners disengage their handspikes, (placing them against the ammunition-chest;) the gunner on the right supports the pointing-plate, while the gunner on the left raises the elevating screw; Nos. 1 and 2 resume their posts, No. 2 replacing their handspikes; the gunners replace theirs in the square-rings.

The Piece being in Battery, if it be intended to change the Piece to the travelling Trunnion-bed,

The chief commands,

1. *Attention.* 2. *Advance*—LIMBER. 3. *Change*—TRUNNIONS.

The gunners unfix the trail handspikes, and pass them to Nos. 1 and 2. The piece is then fixed on its limber, as before directed. Nos. 3 and 4 take off the cap-squares; No. 3 hooks the lock-chain to the lowest spoke; the gunners take their handspikes from the rings, and rest them against the arms of the ammunition-box; No. 2 introduces his handspike into the bore of the piece; No. 1, with his right hand on the muzzle, assists No. 2 in depressing it to raise the breech; the gunner on the right supports the pointing-plate, while the gunner of the left turns down the screw to the pointing-transom.

The remainder of the manœuvre has already been explained in the former change of trunnion-plates.

Manœuvring with Bricoles.

The piece being on its limber, the auxiliaries are stationed on each side of it, after the matrosses, and towards the pole, one pace distant from each other, and provided with shortened bricoles. The matrosses for the service

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of the piece have their bricoles at full length, which are hung from right to left over the ammunition-pouch belts.

At the command

FORWARD,

(*Pl.* IX. *Fig.* 6.) the gunner of the left detaches a handspike, and conveys it to the end of the pole, where, assisted by the gunner of the right, he forms two loops with the breast-chains, through which he introduces his handspike across the pole horizontally. Both gunners place themselves behind this handspike, and are assisted by Nos. 5 and 6, who are stationed outside of them, for the purpose of propelling the piece. Nos. 1 and 2 hook their bricoles to the washer-hooks; Nos. 3 and 4 to the retreat-hooks. The non-commissioned officer, when there is no caisson, is on the left of the chase. The auxiliaries Nos. 7 and 8 form on and in rear of Nos. 1 and 2; Nos. 9 and 10 on Nos. 3 and 4; Nos. 11 and 12 on each side of the chase. Those on the right hook with the right hand, and those on the left with the left hand.

At the word

MARCH,

they all press forward, holding the bricole in the hand next the piece.

At the word

HALT,

all stand fast, keeping the bricoles stretched;

At

TO POSTS,

the matrosses on the right turn to the left, and unhook their bricoles with the left hand; those on the left perform the same movement in an inverse manner; the gunner of the left replaces the handspike, and all resume their posts.

The order *To unlimber*, and *In battery*, is executed in the mann before described. The auxiliaries follow the limber, and take post on each side of the pole, one pace from each other; they assist in supplying the piece when necessary.

The Piece being in Battery,

At the word

FORWARD,

(*Pl.* IX. *Fig.* 7.) the gunners step to the trail handspikes, and seize them with both hands; they are assisted by the non-commissioned officer, who is stationed between them. Nos. 1 and 2 hook their bricoles to the advancing-hooks; Nos. 3 and 4 to the washer-hooks; the matrosses on the right hook with the left hand, and those on the left with the right hand. No. 1 carries the sponge-staff horizontally in the right hand, the sponge-head forward. Nos. 5 and 6 are posted at the end of the pole of the limber, and with it follow the movements of the piece. Nos. 7 and 8 double on Nos. 1 and 2, and Nos. 9 and 10 double on Nos. 3 and 4. Nos 11 and 12 are at the supporting handspikes.

At the word

MARCH,

the men at the handspikes raise the trail; those with the bricoles draw with spirit, holding the trace with the hand next the piece. All march forward in the prescribed direction. Nos. 5 and 6 conduct the limber preserving the prescribed distance from the piece.

At the word

HALT,

the trail is lowered to the ground, the bricoles extended.

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At the word

TO POSTS,

the matrosses face outwards from the piece, and unhook their bricoles those on the right with the right hand, and those on the left with the left hand. All resume their posts. No. 1 rests his sponge against the nave of the wheel, to fix and secure his bricole.

At the word

RETREAT,

(*Pl.* IX. *Fig.* 8.) the gunners place themselves at the trail handspikes, which they hold with one hand, facing to the rear. The non-commissioned officer is on the left of the muzzle of the piece. Nos. 1 and 2 hook to the washer-hooks; Nos. 3 and 4 to the retreat-hooks (those on the right hook with the right hand, those on the left with the left hand.) Nos. 5 and 6 turn the limber to the left-about, to precede the movement of the piece. Nos. 7 and 8 double on 1 and 2; Nos. 9 and 10 double on 3 and 4. Nos. 11 and 12 are at the supporting handspikes.

At the word

TO POSTS,

the men on the right face outwards, and unhook with the left hand; those on the left unhook with the right. Nos. 5 and 6 wheel the limber to the left-about, and place the pole in the direction of the piece.

At the word

FRONT,

all face to the front; Nos. 1 and 2 abreast the muzzle; Nos. 3 and 4 on a line abreast the naves; the gunners abreast the cascable; Nos. 5 *and 6* abreast the end of the pole, and the auxiliaries in their rear, at one *pace* distant from each other; the non-commissioned officer in rear of the ammunition-box. No. 1 carries the sponge horizontally in the right hand.

If the piece be on its limber, instead of the word FRONT, the word will be given, REAR—FACE.

To support the Piece in Retreat, and prevent too rapid a Descent down-hill.

The command is given, *Nos.* 1 *and* 2, (or as many more as necessary,)

Support in—RETREAT.

Those designated take the bricole from the shoulder; Nos. 1 and 2 hook at the advance-hooks, and the others at the washer-hooks, holding the straps of their bricoles in their hands, to avoid the danger that might arise from the piece descending too rapidly.

The Piece being on its Limber, and the Prolonge being required,

Its chief commands,

Unlimber. Fix—PROLONGE.

The limber being withdrawn, the trail on the ground, and the ammunition-box placed on the limber, as before directed, the gunners uncoil the prolonge; the gunner on the left passes the pointed end downwards, through the right staple-ring of the limber, then under the guides, and upwards through the left staple-ring, drawing it so that the ring of the prolonge, twenty-four feet from the key, may be under the centre of the sweep-bar, and securing it under the guides with the prolonge-knot. The gunner of the right passes the key (or T) through the lashing-ring in the trail-transom, draws it up, and secures it in the prolonge-ring under the sweep-bar. The prolonge is then double, or twelve feet long, which is the proper length for firing in retreat, or in advance. (*Pl.* IX. *Fig.* 5.) This is the

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length always implied when the prolonge is ordered to be fixed, unless for flank-firing, or passing a ditch.

Fix prolonge, for flank-firing.

The key is passed through the lashing-ring, and secured in the first prolonge-ring. The prolonge is then sixteen feet long. The gunners repair to the handspikes, and Nos. 3 and 4 to the wheels, to advance the piece beyond the flank of the column, to execute the fire. The prolonge must be slack, that the gunner on the right may not be incommoded in pointing the gun.

Fix prolonge, for passing a ditch.

The key is secured in the lashing-ring, and the prolonge is at its full length (twenty-four feet.) The gunners unfix the trail handspikes, and each carries one, in readiness to disengage the trail, should it become entangled in the passage.

Having passed the Ditch, to execute a flank or retreat Fire.

The command is given,

Shorten prolonge, for flank-firing (or for retreat-fire.)

The gunner of the right shortens the prolonge to the prescribed length.

1. *Unfix and coil prolonge.* 2. *Advance*—LIMBER.

The gunner of the right disengages the key from the lashing-ring; the gunner of the left coils the prolonge round the end of the hounds; the drivers rein back the horses, the chief of the piece directing, so that the trail may be passed over the pintle, and the piece limbered, as heretofore directed.

The prolonge must always be uncoiled and fixed, before the piece arrives in line.

THE SCHOOL OF THE PIECE

Comprehends the movements of a field-piece, with horses, followed by its caisson, and served by a detachment of artillery, horse or foot.

A Detachment of Foot-Artillery, formed as directed in the School of the Gunner, marching by its left Flank, and arriving in Front of the Horses,

Is commanded,

1. *To posts.* 2. MARCH.

The two ranks take their posts on the right and left of the piece (as prescribed in page 13); the chief of the piece on the left of the driver of the leading horses of the gun, and the non-commissioned officer in the same position at the caisson.

In horse-artillery, the men are not stationed, on the march, at the sides of the piece, as in foot-artillery, but are formed in two ranks in rear of the piece.

Note. Two auxiliaries are always added to the squad, in horse-artillery, to hold the horses; their position is in the centre of the squad.

At the command given by the chief of the piece, *To posts*—MARCH, the squad moves up to within one pace of the muzzle of the piece; the chief of the piece takes post on the left of the driver of the leaders, and the non-commissioned officer at the caisson, as stated above.

In all movements of the piece, the order *To the right*, or *To the left* implies that side as relates to the drivers.

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At the command,

Forward—MARCH,

the drivers urge their horses, and the piece advances, followed by its caisson, the leading horses of which are one pace distant from the muzzle of the piece; in horse-artillery, one pace distant from the rear rank of the squad.

To prepare for Manœuvring.

The command is given,

HALT.

(For pieces with travelling trunnion-plates, after the word HALT, the command is given, *Prepare to change trunnions—Change trunnions.*)

Unlimber. Fix—PROLONGE.

These are executed as prescribed in the School of the Gunner, and all resume their posts. In horse-artillery, at the second command, the chief of the squad (who is the gunner of the right) commands,

DISMOUNT.

At this word, all dismount, except the centre man of each rank, (Nos. 7 and 8,) who remain mounted, and take charge of the horses of their respective ranks, holding them by the snaffle-reins. (*Plate* IX. *Fig.* 5.)

The men, in dismounting, confine the curb-reins by drawing them through the loop of the martingale or breast-plate; passing the end under the cloak-strap near the left knee. The gunners and matrosses, after giving their horses to Nos. 7 and 8, repair to the piece, taking post as prescribed for foot-artillery.

When the non-commissioned officer dismounts, he gives his horse to one of the drivers of the caisson, and the chief of the piece gives his horse to one of the drivers of the piece.

The prolonge being fixed, the chief of the squad commands,

MOUNT.

The squad mounts, and takes its position in rear of the piece.

To change Direction to the Right or Left.

A piece manœuvring with the prolonge may be wheeled either on a *movable* or *fixed* pivot. In the former case, the prolonge is stretched, and the piece is turned advancing; the wheel horses describing the segment of a circle. In the latter case, (a fixed pivot,) the prolonge is slackened by backing the wheel horses, which are then turned short, and enter the new direction, advancing to stretch the prolonge, and turning the piece on one of its wheels. The caisson cannot turn upon its own ground or on a fixed pivot, but must make a considerable sweep, describing the segment of a circle; such is also the case with the piece on its limber.

At the command,

1. *Piece*—2. *Left wheel*—3. MARCH,

the chief of the piece turns to the left; the driver of the leading horses takes the direction from him.

The piece being in the new direction, its chief commands,

Forward—MARCH.

The caisson having arrived at the point at which its piece wheeled, the non-commissioned officer commands,

1. *Caisson*—2. *Left wheel*—3. MARCH,

and it follows the direction of the piece.

The wheel to the right is effected on the same principle.

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All wheels of the half circle are made to the left, when practicable. At the command,

1. *Piece*—2. *Left-about wheel*—3. MARCH,

the leading horses are turned to the left, and immediately to the left again; that is, to the left-about. The wheel horses back the limber, as before stated, then turn to the left, the wheel passing over the prolonge, which might otherwise get engaged in the wheel, and embarrass the manœuvre; they are then again turned to the left, and the leaders oblique in the new direction.

This movement is of the utmost importance, and the drivers must be practised to perform it with skill and rapidity; it is always used in face of an enemy, to change from order of battle, or line, into battery. In wheeling to the left-about, the men *of the right of the piece*, (being in the position *To action*,) at the word *wheel*, face to the right, and, passing the muzzle, move round, and form in rear of the men on the left. The wheel being executed, the men on the left of the piece (who had not moved) face to the left, pass the muzzle, and resume their posts on the left of the piece.

Wheeling on a fixed pivot is to be preferred on all occasions, on account of its requiring less space, and being more promptly executed than on a movable one. To enable the caisson or piece on its limber to wheel to the left-about, it is wheeled to the left, then advances twelve paces, wheels again to the left, and then obliques to prolong its direction.

In Order of Battle, or in Line,

The horses of the piece and of the caisson are towards the enemy; the leading horses of the caisson are forty-five paces from the muzzle of the gun.

In Battery,

The muzzle of the piece is towards the enemy, and the horses' heads to the rear, with the same distance of forty-five paces between the leading horses and the caisson.

The Piece being supposed in Line, to form in Battery.

The chief of the piece commands,

1. *Piece.* 2. *Left-about wheel.* 3. MARCH.

The piece is wheeled to the left-about, on a fixed pivot, and the men take their stations as in *To action.*

In horse-artillery, at the second word, the chief of the squad commands,

DISMOUNT,

and the horses are led six paces in rear of the leaders of the piece, and then face the enemy.

If, marching in column of route, it become necessary to form battery, the caisson would immediately wheel to the left-about, and move to its proper distance in rear, and then again wheel, left-about.

If the piece were on its limber, it would oblique to the right before wheeling, that it might not lose its direction.

From Battery, to advance.

The chief of the piece commands,

1. *Forward.* 2. *Piece—left-about wheel.* 3. MARCH.

In horse-artillery, the order is given, *Trot—march;* and, if the distance to advance be considerable, the chief of the squad commands,

MOUNT.

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Being in Battery, to fire to the Rear.

The chief of the piece commands,

1. *Fire to the rear.* 2. *Piece—left-about wheel.* 3. MARCH.

The piece is wheeled rapidly to the left-about; the caisson advances at a trot, passing four paces to the right of the piece, then obliquing to the left, and taking its prescribed position. As soon as it has passed, the piece commences firing.

In horse-artillery, the men having charge of the horses move round with them rapidly in front of the horses of the piece.

Being on a March, to fire to the Rear.

The chief orders,

1. *Fire to the rear.* 2. *Piece—halt.* 3. TO ACTION.

The piece is halted, and the men take their posts as in *To action.* The caisson, passing four paces on the right of the piece, advances at a trot to its proper distance.

In horse-artillery, before the third command, the chief of the squad orders,

Squad—forward—trot—MARCH.

The squad moves six paces in front of the leaders of the piece, when the chief commands,

Halt—Dismount,

and they take their posts at the gun.

On the March, to form Line to the Left.

If there be sufficient ground to admit the piece advancing to its proper distance, the order is given,

Piece and Caisson—left wheel—MARCH.

The piece is wheeled to the left, and advances until it has gained its proper distance from the caisson, when its chief commands,

Piece—HALT.

The caisson wheels to the left, and halts when in line in rear of its piece.

If there be not sufficient ground in front, or if manœuvring on the flank of a corps, whose line of formation is not to be passed, the order is given,

Left into line—{ *Piece—left* / *Caisson—right* } *wheel*—MARCH.

At the word MARCH, the piece is wheeled to the left on a fixed pivot; the caisson wheels to the right, moves about sixty paces in rear of the piece, then wheels to the left, moves on until on the line with the piece, and then wheels again to the left, covering the piece at forty-five paces distance.

The formation to the right is made by inverse means.

To form in battery to the left, on a march, is accomplished by a simple wheel to the right, and is called *inverse order.*

The chief commands,

1. *By inversion—to the left into battery.*
2. { *Piece—right wheel.* / *Caisson—right oblique.* } 3. MARCH.

The piece wheels to the right on a fixed pivot; the caisson obliques to the right, and moves forty-five paces in rear of the gun.

In horse-artillery, the chief of the squad commands, *Squad—left half-wheel;* then, *Right half-wheel;* when clear of the piece, *Forward—*

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right-wheel, to take position in front of the leaders; when there, he orders, *Right-about wheel, halt*, and *dismount*.

If there be not space enough on the right for the above movement, or if manœuvring with a corps, (as it would be necessary that the piece should be in advance of its front,) twenty paces in rear of the line on which the piece is to form battery, the command is given,

1. *To the left into battery.*

2. { *Piece—left* / *Caisson—right* } *wheel.* 3. MARCH.

The piece wheels to the left, and advances in that direction, until it has passed ten paces beyond the line. The chief then commands,

Piece—left-about wheel—MARCH.

The piece wheels to the left-about, and halts when its limber has passed to the rear of the line of formation. The prolongation of the line of formation should pass through the middle of the prolonge.

The caisson, after wheeling to the right, moves to its proper distance in rear, obliquing to the right, and wheeling to the left-about.

In horse-artillery, the squad halts, when the piece wheels to the left, and dismounts.

Battery may be formed to the right by a similar movement.

To march in Retreat.

To march in retreat, only differs from the march to the front, in the caisson preceding instead of following the piece. If it be necessary to fire while marching in retreat, the command is given, HALT—TO ACTION, and the fire commences. In horse-artillery, the chief of the squad commands, *Squad*—DISMOUNT, and the horses are led round in front of the leaders.

MANUAL OF THE HOWITZER.

The same number of men are necessary for the *service* of a twenty-four pounder howitzer, as are required for a six-pounder field-piece, viz.

2 gunners.

6 matrosses.

1 non-commissioned officer, to take charge of the caisson and ammunition-box.

1 commissioned officer, or, in case of deficiency, a senior non-commissioned officer, to command the whole.

For manœuvring with bricoles, four additional matrosses are required as auxiliaries.

The positions of the whole are the same as has been prescribed in the Manual of the Piece. They have the same equipments, and are charged with the same duties.

The auxiliaries may be employed, if necessary, in preparing the shells and supplying ammunition. Although the functions of the men employed in the *service* of a field six-pounder, and a twenty-four pounder howitzer, should correspond to each other, and have been amply detailed above, it is nevertheless thought proper to repeat them here, in order to point out some slight differences in the method of loading the two guns.

At the command *To action*, given by the chief of the piece, No. 3 unhooks the water-bucket, places it under the arm of the axletree, and lights his portfire. The gunner of the right places himself between the pointing-handspikes, gives the direction, and resumes his post.

At the word *Load*, the gunner of the left steps to the breech, to stop the vent and give the elevation. Nos. 1 and 2 step towards the muzzle, to haul the howitzer. No. 1 pushes the cartridge gently to the bottom of the

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chamber. No. 2 places the shell in such manner that the fuze shall be exactly in the direction of the axis of the bore. The rest of the manual is similar to that of the field-piece.

If the object fired at be beyond the point-blank range of the piece, the gunner will not give the elevation until Nos. 1 and 2 have retired from the muzzle, and he will then use the quadrant, if there be no graduated movable sight.

The manner of advancing and retreating with bricoles, and the manœuvres with the prolonge and with the limber, are the same as has been prescribed in the School of the Piece.

SCHOOL OF THE BATTERY.

General Principles.

A BATTERY for field-service is here supposed to consist of six pieces, (of either of the calibers designated for the field, or mixed,) each piece having its caisson, which is to manœuvre with it, and each piece and caisson being drawn by four horses.*

The battery must be numbered, both pieces and caissons, from right to left. In every movement, the chief of each piece, in giving the word, will designate it by its number; and, except in extraordinary cases, the numbers are not to be inverted.

The battery is divided into three sections, each consisting of two pieces and two caissons, and numbered, in like manner, from right to left.

It is also divided into half-batteries, each consisting of three pieces and three caissons, called right and left half-batteries.

The battery is supposed to be served by a company, consisting of a captain, four subalterns, and a sufficient number of non-commissioned officers and privates.†

The captain commands the battery.

Three subalterns (or, in case of deficiency, senior non-commissioned officers) command the sections. The senior commands the first section, the next the third section, and the next commands the second section.

The officer of the first section commands the right half-battery, and the officer of the third section the left half-battery; the officer of the second section becomes attached to the right half-battery.

The junior subaltern commands the line of caissons, and, by way of distinction, will be called the *officer of the train.*

A sergeant (or corporal) shall have charge of each piece, and direct its movements.

A non-commissioned officer shall always have charge of each caisson, and direct its movements. The senior non-commissioned officer of each section of caissons will be considered the chief of that section.

Two non-commissioned officers will act as guides and markers. These duties being useless in front of an enemy, they will then be employed with the caissons.

* For purposes of instruction, light pieces and empty caissons may be drawn by two horses.

† A company of volunteer artillery may not have a sufficient number of men for the service of a battery of six pieces; but the principles laid down in the following manœuvres will equally apply to a battery of four, or even of two pieces; and also to one of eight or ten pieces. Two or three small companies may be united for the service of a battery of six or more pieces. In this case, a field officer would command the battery; the senior captain would command the first section; the next in rank the third section; and so on. The fifth in rank is always to command the line of caissons. Supernumerary officers to be assigned to the command of pieces or sections of caissons.

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Fig. 1. Pl. X.

In line

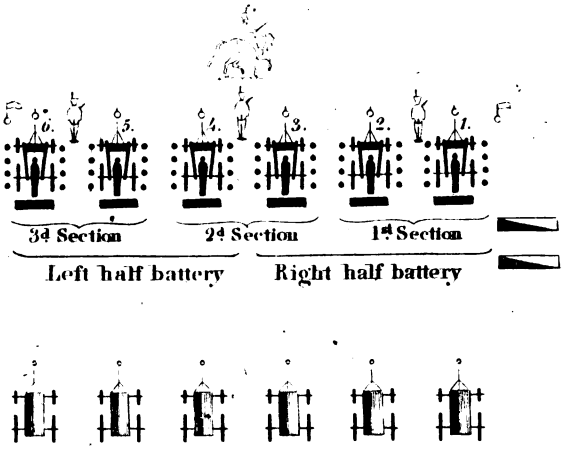
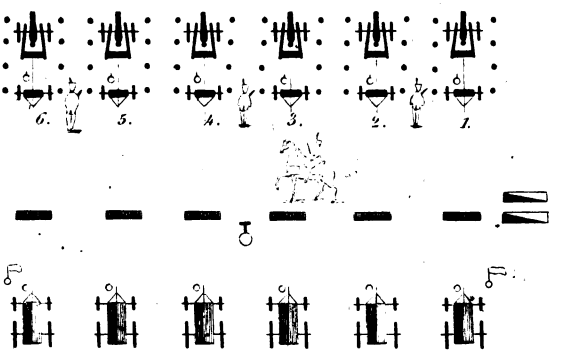


Fig. 2.

In battery



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In foot-artillery, the gunners and matrosses march in file, on each side of the piece, preserving their posts, as directed in the School of the Gunner

In horse-artillery, they form in two ranks in rear of the piece, as directed in the School of the Piece.

When the battery is formed *in line* or *in battery*, its right is always the same, viz., that of a man standing in front of the battery with his back towards the pieces; but, in the movements, the right and left is always taken in regard to the drivers, and not to the pieces. *Wheeling-about* must always be by *pieces*, to the left.

The *alignment* is made on the drivers of the wheel-horses. For parade, it may be made more correctly by the axletrees of the pieces.

In line, the horses of the caissons front as those of the pieces; but, *in battery*, the reverse, except when formed *in retreat*, or firing to the rear.

There are two sorts of movements—the movement *in advancing*, and the movement *in retreat*. In the first, each piece precedes its caisson; in the second, each caisson precedes its piece. What is executed by the pieces in the first, applies to the caissons in the second. In each of these movements, either the right or left may be in front.

In manœuvring, the movements of the caissons are regulated by those of their pieces, and by the orders of the officer of the train.

For manœuvring, the battery will be formed either in line, or in column of sections, or half-batteries.

Column of pieces (or single file) is never to be used but in passing a defile, or on a march, or moving into or out of park.

A piece or caisson passing another must always move to the right, leaving it on its left.

The prolonge is always to be used for manœuvring in presence of an enemy. In all the exercises of firing, therefore, it must be considered as fixed; but, when the captain is certain that it will not be necessary to form *in battery*, but merely to conform the movements to those of the troops with which he is acting, he will cause the pieces to be limbered, to spare his horses and save the prolonge. The words of command are the same in both cases.

A piece with four horses, and its prolonge extended, occupies forty-four feet, and this interval must be preserved between the pieces in line.*

The cautionary word *Attention*, which should precede all movements, is always to be given by the captain, and is not to be repeated by any other person.

The chiefs of each section give the words of command which particularly apply to their sections, and also repeat the general words of command for executing any manœuvre when the battery is in column.

The officer of the train gives the general word of command for the line of caissons, and the senior non-commissioned officer of each section of caissons gives the word which particularly applies to those two caissons.

As in infantry and in cavalry, when the right is in front, the guide is on the left; and the reverse.

FORMATION OF THE BATTERY.

1st. IN LINE. 2d. IN BATTERY. 3d. IN COLUMN. 4th. FOR PARADE.

1st. In Line.

(*Pl.* X. *Fig.* 1.) The pieces are on a line, axletree to axletree, with intervals between them equal to the length of the piece, which vary according to the calibers, number of horses, and according as the pieces are limbered or have their prolonges fixed.

* With two horses, the interval would be thirty-two feet.

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The caissons are in line in rear of their pieces, the horses' heads facing the same way as those of the pieces; the distance between the two lines being twice the length of the piece, from the heads of the leaders of the caissons to the muzzles of the pieces.

The word *interval* designates the lateral space between two pieces or caissons by the side of each other; and by the word *distance* is meant the space between two carriages or lines of carriages following each other.

The captain is posted in the centre, twelve paces in advance of the leading-horses;

The chiefs of sections, between the two pieces of their sections, and six paces in advance of the leading horses;

The chiefs of pieces, one pace in advance of the leaders of their pieces;

The gunners and matrosses, in file, on the right and left of their pieces, at the posts designated in the School of the Gunner. In horse-artillery, they are formed in squads, four paces in rear of the muzzles of their pieces.

The officer of the train is in the centre of the line of caissons, and twelve paces in advance of the leading horses.

The non-commissioned officers are one pace in advance of their caissons;

The musicians, four paces from the right, and four paces in rear of the muzzles of the pieces.

The formation in line *in retreat* is the same as in line to the front, except that, in horse-artillery, the squads of mounted gunners and matrosses, instead of being in rear of the muzzles of the guns, are four paces in front of the chiefs of the pieces.

2D. IN BATTERY.

(*Pl.* X. *Fig.* 2.) In battery, as in line, the caissons are in line, in rear of the pieces. The interval between the pieces is the length of a piece with its prolonge fixed, and the distance between the leading horses of the pieces and the caissons is forty-five paces.

The captain places himself wherever he can best be heard, and can best observe the effect of the fire; but usually in the centre of the battery, eight paces in advance of the leading horses;

The chiefs of sections, in the centre of their sections, and on a line with the limbers;

The chiefs of pieces, opposite their pieces, and midway between the limbers and the pointing handspikes;

The gunners and matrosses, (foot or horse,) at the posts assigned them in the School of the Gunner. In horse-artillery, the horses of the gunners and matrosses face the enemy, opposite their pieces, and midway between the pieces and the caissons.

The officer of the train is opposite the centre of the line of caissons, eight paces in advance of the leading horses.

The non-commissioned officers are at their caissons during the firings.

The musicians are four paces beyond the right flank of the battery, and midway between the pieces and the caissons.

3D. IN COLUMN.

Column of Pieces, Right in Front.

(*Pl.* XI.) Each caisson follows immediately after its piece.

The captain is habitually on the left, abreast the centre of the column.

The officer of the train is on the right of the column, abreast the captain.

The chief of the first section marches at the head of the column, one pace in front of his leaders; and the chiefs of the other sections, four paces from the left of the centre of their respective sections.

The chief of each piece is by the side of the driver of the leading horses of his piece.

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Column of Pieces.

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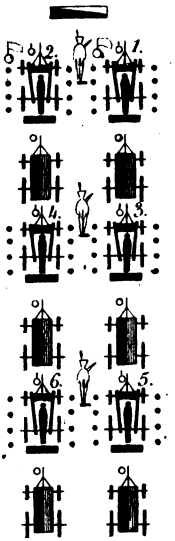
Column of Sections.



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The non-commissioned officers in charge of the caissons are on the right of the column, each by the side of his particular caisson.

In horse-artillery, the squads of mounted gunners and matrosses are one pace from the muzzles of the guns; and the leading horses of the caissons, one pace in their rear.

In foot-artillery, the leading horses of the caissons are one pace from the muzzles of the guns.

The guides are one at the head, and the other in rear of the column; the first marches by the side of the driver of the leading horses of the first piece, and the second in rear of the last caisson.

The musicians are six paces in front of the head of the column.

Column of Sections, Right in Front.

(*Pl.* XII.) The captain places himself wherever he can best commu nicate his orders, and observe the movements; but, habitually, eight paces from the left of the centre of the column. The officer of the train is at the same distance on the opposite flank.

The chief of the first section is two paces in advance of the centre of his section.

The chiefs of the other sections are between the two pieces of their sections, abreast the drivers of the leading horses.

The chief of each piece is by the side of the driver of the leading horses of his piece, except those of the first section, who march one pace in front of their leaders.

The non-commissioned officers having charge of caissons are abreast the drivers of the leading horses of their caisson, and on the right of the caisson;

The gunners and matrosses, at their posts on each side of the piece; in horse-artillery, one pace in rear of the muzzle.

The guides are both at the head of the column, on a line with the chiefs of the two first pieces, and two paces outside the horses. The one on the left is charged with the direction of the column, and the other with preserving the proper distance between the files of pieces. Before the enemy, the chiefs of the two first pieces are to be considered as guides.

The musicians are six paces in front of the chief of the first section.

In foot-artillery, there should be six paces' distance between each carriage and that which precedes it, measuring from the leaders to the muzzle of the gun, or rear of the caisson.

In horse-artillery, each piece is one pace distant from the caisson which precedes it, and *that* is one pace distant from the squad of mounted men.

In this manner, supposing the pieces and caissons to be each drawn by four horses, the column would be eighty-eight yards in length. This length is given, in order that the battery may be formed on the same ground it occupies in column.

When marching *in retreat*, the chiefs of sections and the guides take the same positions, relatively to the caissons, which they occupy in regard to the pieces *in advancing*.

In column, either of pieces or of sections, with the left in front, the positions designated on the left of the column are respectively exchanged for similar positions on the right.

In column on the centre section, this section will be formed like the first section in a column right in front.

The other sections will be formed as two columns of pieces, the first being left in front in rear of the third piece, and the third right in front in rear of the fourth piece.

Column of Half-Batteries.

The column of half-battery is formed in a similar manner to the column of sections, except that the caissons are to be at twelve paces' distance from

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their pieces; and the two half-batteries are to have the distance of the length of a piece between them.

The chief of each half-battery is posted in the centre of it, and six paces in advance of the leading horses; the chief of the second section, at the same distance between the second and third pieces. For all the rest, their positions are the same as in column of sections.

4TH. PARADE AND REVIEW.

(*Pl.* XIII. *Fig.* 1.) The battery is drawn up *in line*, generally with the pieces on their limbers.

The captains and chiefs of sections are at their posts *in line*.

The gunners and matrosses (whether foot or horse) are formed in squads, twelve paces in rear of the muzzles of the guns; the chief of each piece on the right of his squad.

If the reviewing personage pass through the battery, between the line of pieces and the squads, the captain and chiefs of sections face to the right-about, and take post on a line with the muzzles of the pieces, facing the rear.

The musicians are on a line with the squads, and four paces beyond the right flank of the battery.

To pass in Review.

This is executed either by battery, by half-batteries, or by sections.

In marching past by battery, only the length of a piece is allowed between the two lines of the battery.

The captain, chiefs of sections and officer of the train are at their *posts*, as *in line*. The gunners and matrosses are formed in squads, with the chiefs of pieces on the right of each; the squads, four paces in rear of the muzzles of their pieces, so that there remains, between the caissons and the squads, fourteen or fifteen paces for the foot-artillery, and nine or ten for horse-artillery.

By half-batteries, the length of a piece is allowed from one line to another.

The captain marches opposite the centre of the first line, twelve paces in advance of the leading horses;

The chief of the right half-battery, between the first and second pieces; the chief of the second section, between the second and third pieces; the chief of the left half-battery, opposite the centre of his half-battery; all three are six paces in advance of their divisions; the officer of the train, opposite the centre of the line of caissons of the right half-battery, six paces in advance of the leading horses; the non-commissioned officers of caissons at their places for manœuvre; the chiefs of pieces, on the right of their squads; the squads, four paces in rear of the muzzles of the pieces, so that the distance between the squads and caissons is, in foot-artillery, fourteen or fifteen paces, and in horse-artillery, nine or ten paces.

Marching past by sections, in foot-artillery, the distance from one line to another is six paces, and in horse-artillery, ten paces, between the caissons and their pieces; and two paces between the sections.

The captain marches at the head of the column, twelve paces in advance of the leading horses; the chiefs of sections, and the non-commissioned officers of caissons, at their places for manœuvre; the officer of the train, near the non-commissioned officer of the caisson of the first section, on the side of the guide; the chiefs of the pieces, on the right of their squads, which are in rear of the muzzles of their pieces; two paces for foot-artillery, and one pace for horse-artillery; and the caissons are at the same distance from the squads.

In all cases, the musicians march past six paces in advance of the captain.

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Parade.

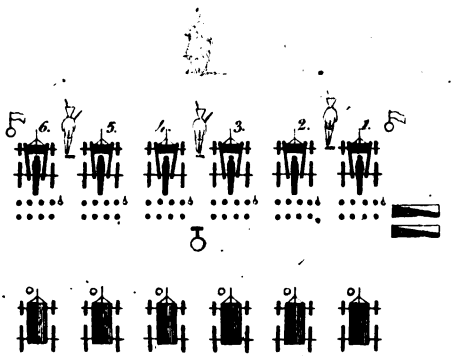
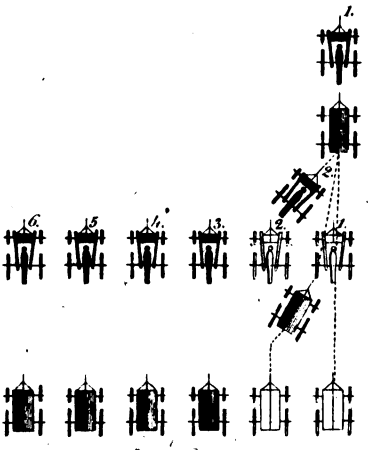


Fig. 2.
To break into column by pieces to the front from the park.

Fig. 2.

1. Attention.
2. By pieces, front into column.
3. March.



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In passing in review without caissons, the officer of the train attached to the battery takes post, if marching by battery, abreast the chief of the second section, on the side opposite the guide; if by half-batteries, between the chiefs of the first and second sections, and on a line with them; and if by sections, on a line with the chief of the first section on the side opposite the guide.

SCHOOL OF THE BATTERY.

THE School of the Battery is divided into five parts.

The first part comprehends the different methods of passing from line into column.

The second will include the march in column, and various other movements relating to the column;

The third, the different methods of passing from column into line.

The fourth part will include the march in line, to the front and in retreat; changing direction in line; closing intervals; passing an obstacle; halting the battery, and aligning it; marching to a flank; passing a defile; forming in battery; changing front; and the countermarch.

The fifth part comprehends the various firings.

PART I.

THE DIFFERENT METHODS OF PASSING FROM LINE INTO COLUMN.

ARTICLE FIRST.

Being in Line, at a Halt, to break into Column of Pieces.

1*st*. To the Front.
2*d*. To the Right (or Left.)
3*d*. From the Right to march to the Left, and the Reverse.
4*th*. In Retreat.

1. 1st. *To break into Column by Pieces to the Front.*

(*Plate* XIII. *Fig.* 2.) The captain commands,

1. *Attention.* 2. *On first piece, front into column.* 3. MARCH.

At the second command, the officer of the train orders,

Caissons—forward—trot—MARCH;*

and the line of caissons closes on that of the pieces. At the same command, the chief of the first section orders,

First piece—forward; Second piece—right oblique.

At the word MARCH, repeated by the chief of the first section, the first piece, followed by its caisson, moves to the front.

The second piece, followed in like manner by its caisson, moves obliquely to the right to enter the column.

The other pieces break off successively at the command of the chiefs of their sections,

Pieces—right oblique—MARCH,

and, obliquing as much as possible, thus enter the column.

* *General rule.* These commands for the caissons will be the same in all the formations in column. In the horse-artillery, the squads close up to the pieces at the same time with the caissons.

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This movement is made on the sixth piece by the same method, and by similar words of command.

---

2. 2d. *To break into Column by Pieces to the Right.*

(*Pl.* XIV. *Fig.* 1.) The captain commands,

1. *Attention.* 2. *By pieces, right into column.* 3. MARCH.

At the second command, the line of caissons closes on that of the pieces. The chief of the first section orders,

Pieces—right into column.

At the word MARCH, repeated by the chief of the first section, the first and second pieces wheel to the right, on a movable pivot; their caissons, advancing, wheel on the same ground, and follow their pieces. As soon as the caissons have half completed their wheel to the right, the chief of the second section commences his movement; and so on with the third.

To break to the left, is performed in the same manner, and by similar words of command.

When the battery is in park, the words of command are given successively for each piece.

---

3. 3d. *To break into Column of Pieces from the Right, to march to the Left.*

The captain commands,

1. *Attention.* 2. *By pieces, break from the right, to march to the left.* 3. MARCH.

At the second command, the line of caissons closes on that of the pieces. The chief of the first section orders,

First piece—forward.

At the command MARCH, repeated by the chief of the first section, the first piece, followed by its caisson, moves forward about thirty paces; and at the command of the chief of the first section, *Head of column—left*, it then wheels to the left, and prolongs the new direction.

When the hind-wheels of the first piece are opposite the second piece, this also, followed by its caisson, is put in motion by command of the chief of the section,

Second piece—forward—MARCH.

It moves about thirty paces, then wheels to the left, and takes its place in the column. The other pieces and caissons break off in the same manner. Each chief of section takes his post after he has given the word of command to his second piece.

To break to the left to march to the right, is performed in the same manner, and by similar words of command.

---

4. 4th. *To break into Column of Pieces, in Retreat.*

The captain, intending to execute this movement, will first form the battery *in line in retreat*, by wheeling about; and for this purpose he commands,

1. *Attention.* 2. *Pieces and caissons—left-about wheel* 3. MARCH.*

This movement being executed, the captain commands,

1. *Attention.* 2. *On sixth piece, in retreat, into column.* 3. MARCH.

* In horse-artillery, the squads of gunners and matrosses also wheel to the left-about

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Being in park, to break into column of pieces to the right Fig. 1. & from the right to march to the left Fig. 2.

Fig. 1. *Pl. XIV.*

1. Attention.
2. By pieces, right into column.
3. March.

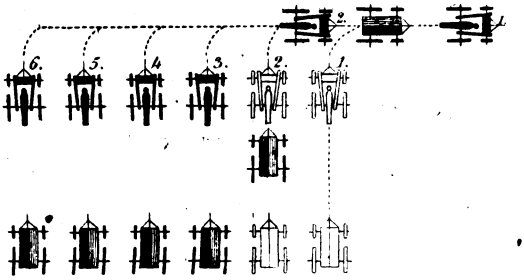
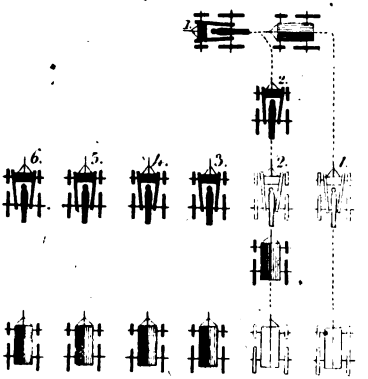


Fig. 2.

1 Attention.
2 By pieces, break from the right to march to the left.
3 March.



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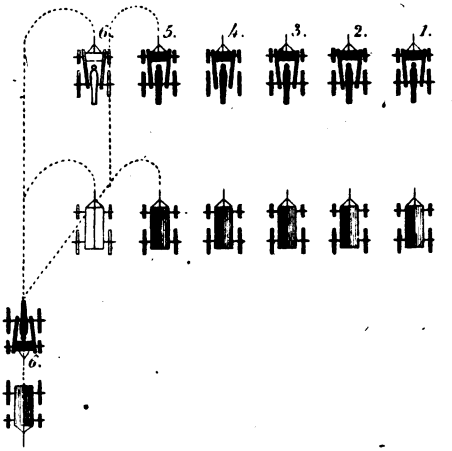
Being in park, to break into column of pieces, in retreat. Pl. XV.

1. Attention.
2. On 6.th piece, in retreat, into column.
3. March.



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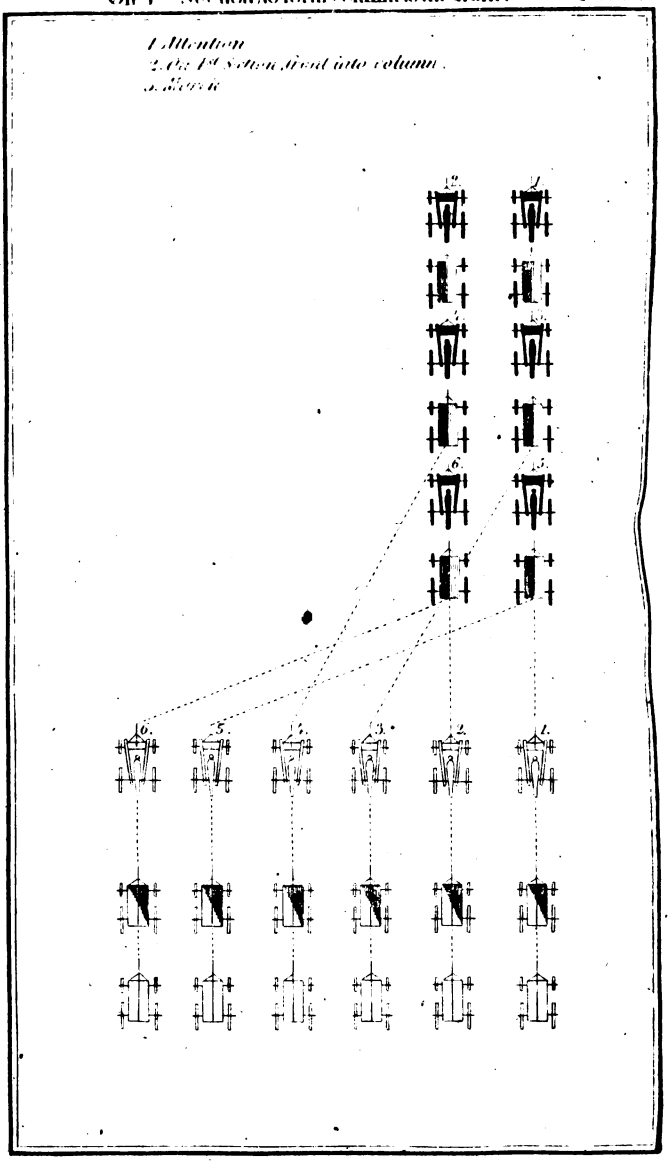
On 1st Section, to form column to the front. Pl. XVI.



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At the second command, the chiefs of sections close the line of pieces on that of the caissons, by the command,

Pieces—forward—MARCH.*

At the second command, the officer of the train orders,

Sixth caisson—in retreat; Fifth caisson—right oblique.

(*Pl.* XV.) At the word MARCH, repeated by the chief of the third section, the sixth caisson, followed by its piece, moves forward. The other caissons, followed by their pieces, form in column, by words of command and movements similar to those in the formation to the front.

The movement may be executed in the same manner on the first piece.

When the battery is in park, or where the intervals between the carriages do not permit the formation of the column in retreat, in the manner above described, the pieces and caissons must break off, by wheeling to the left-about, in succession.

ARTICLE SECOND.

Being in a Line, at a Halt, to break into Column of Sections

1*st.* To the Front.
2*d.* To the Right (or Left.)
3*d.* From the Right to march to the Left, and the Reverse.
4*th.* In Retreat.

5. 1st. *To break into Column of Sections to the Front.*

FIRST CASE. *From one of the Wings; for example, the right.*

(*Pl.* XVI.) The captain commands,

1. *Attention.* 2. *On first section—front into column.* 3. MARCH.

At the second command, the officer of the train orders,

Caissons—forward—trot—MARCH;

and the line of caissons closes on that of the pieces.

At the same command, the chief of the first section orders,

First section—forward—guide left.

At the word MARCH, repeated by the chief of the first section, and which shall be given when the line of caissons shall have arrived within twenty paces of that of the pieces, (this is always the case when the battery breaks into column of sections,) the first section moves forward in the direction given it.

When the leading horses of the caissons have reached the line of those of the pieces, the chief of the second section commands,

Second section—right oblique—MARCH;

and this section takes its position in column at the command,

Forward—guide left,

given by its chief.

The third section executes the same movements in relation to the second section.

To break on the third section, is performed in like manner, and by similar words of command.

* In horse-artillery, the squads of gunners and matrosses close on the caissons, at the same time as their pieces.

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6. SECOND CASE. *To break into Column to the Front, on the centre Section.*

(*Pl.* XVII.) The captain commands,

1. *Attention.* 2. *On second section—front into column.* 3 MARCH.

At the second command, the line of caissons closes on that of the pieces. The chief of the second section orders,

Second section—forward—guide right;

the chief of the first section,

By pieces—left into column;

the chief of the third section,

By pieces—right into column.

At the word MARCH, repeated by the chiefs of the sections, the second section moves forward; the pieces of the other sections make their wheel to the left and to the right on a movable pivot, and the caissons wheel upon the same ground as their pieces. When the second piece has arrived opposite to the caisson of the third, the chief of the first section commands,

Head of column to the right;

and this piece, followed by its caisson, enters the column in rear of the caisson of the third. The first piece is placed in the same position in relation to the second. The third section is formed in like manner in file, in rear of the fourth piece.

---

7. 2d. *To break into Column of Sections to the Right.*

(*Pl.* XVIII.) The captain commands,

1. *Attention.* 2. *By sections—right into column.* 3. MARCH.

At the second command, the line of caissons closes on that of the pieces. The chiefs of sections order,

Section—right wheel.

At the word MARCH, repeated by the same chiefs, the pieces of each section make a wheel to the right on a fixed pivot, and move forward at the command, given by the captain, *Forward—guide left*, repeated by the chiefs of sections. The caissons wheel a little before they arrive at the points where the pieces wheeled, and arrange themselves in the column.

To break to the left into column, is executed in the same manner.

---

8. 3d. *To break into Column of Sections from the Right, to march to the Left.*

(*Pl.* XIX.) The captain commands,

1. *Attention.* 2. *Sections—break from the right to march to the left.* 3. MARCH.

At the second command, the line of caissons closes on that of the pieces. The chief of the first section commands,

First section—forward—guide left.

At the word MARCH, repeated by the chief of the first section, this section moves about thirty paces to the front; wheels to the left on a movable pivot, at the command *Left wheel*, given by its chief; dresses on its guide at the word *Forward*, and marches in a direction parallel to the line. The caissons wheel on the same ground as their pieces.

When the hind-wheels of the pieces of the first section have arrived opposite the centre of the second section, the latter commences its move-

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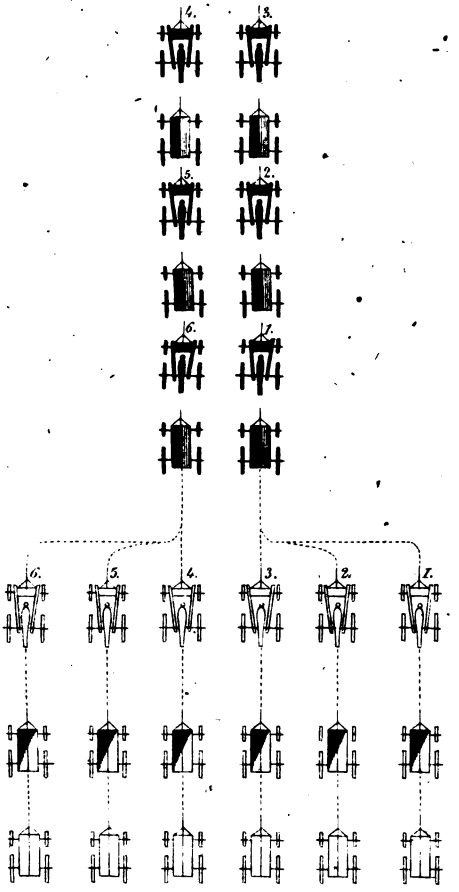
1. Attention.
2. On 2.d Section, front into column.
3. March.



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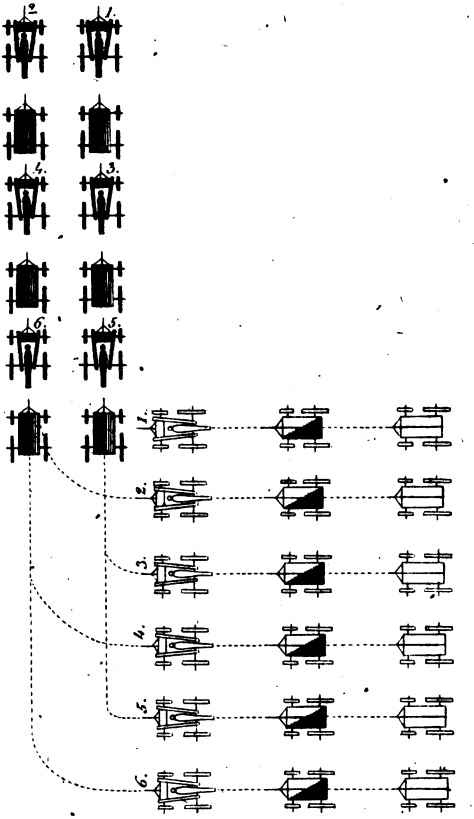
1. Attention.
2. By sections, right into column.
3. March.



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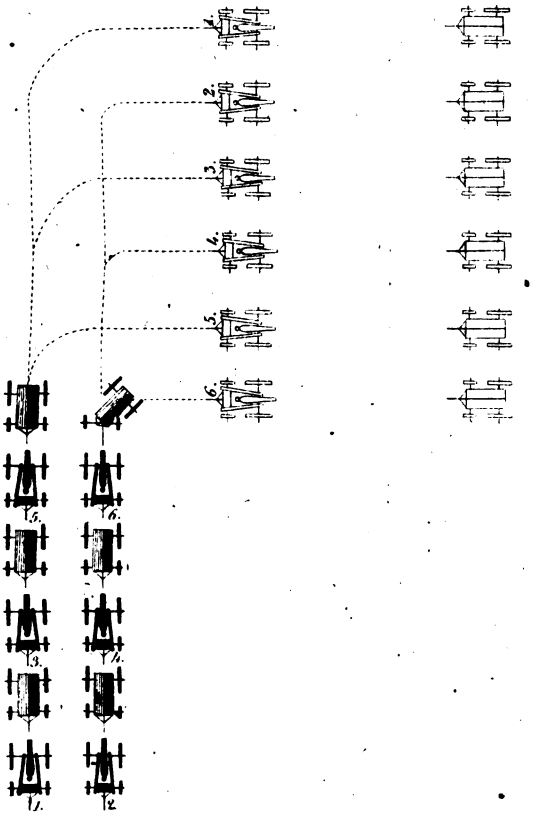
1. Attention.
2. Sections, break from the right to march to the left.
3. March.



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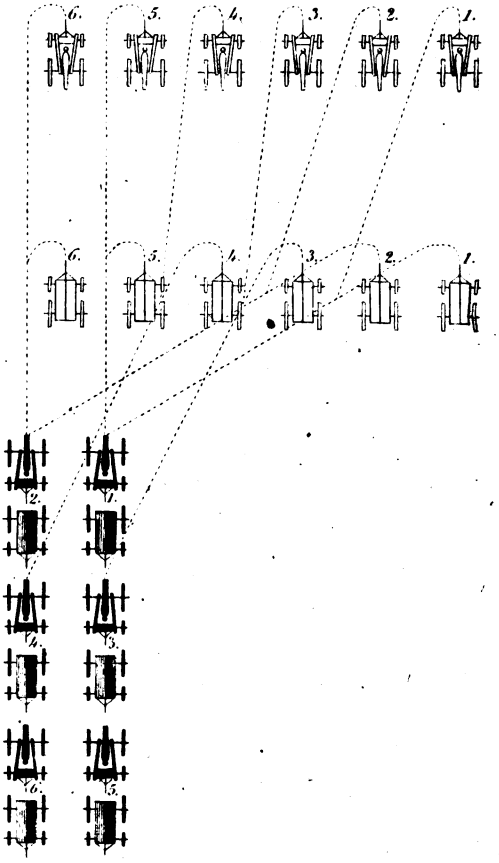
1. *Attention.*
2. *On 3.d section in retreat, into column.*
3. *March.*



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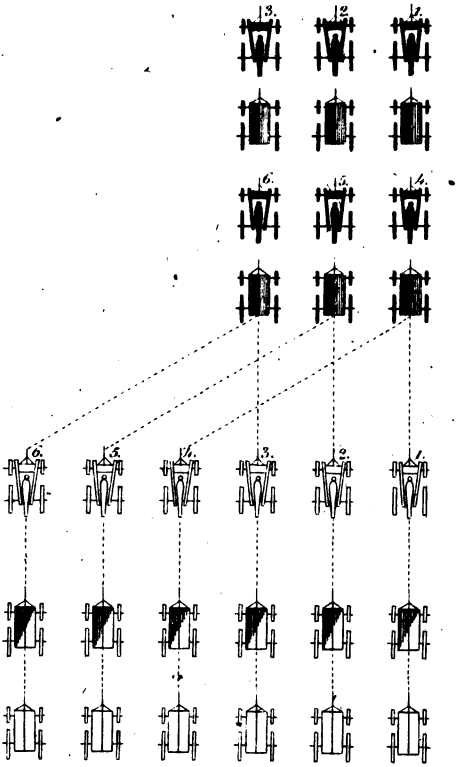
1. Attention'.
2. On right half battery, front into column.
3. March.



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ment, at the command of its chief, marches about thirty paces, wheels to the left, and takes its position in the column.

The third section executes the same movement in relation to the second.

To break from the left to march to the right, is performed in the same manner.

---

9. 4th. *To break into Column of Sections, in Retreat.*

(*Pl.* XX.) The captain intending to execute this movement must first as in No. 4) form the battery *in line in retreat*, by the commands,

1. *Attention.* 2. *Pieces and caissons—left-about.wheel.* 3. MARCH.*

This being executed, the captain commands,

1. *Attention.* 2. *On third section—in retreat—into column.* 3. MARCH.

At the second command, the chiefs of the sections close the pieces on the caissons.† When they are within twenty paces, the chief of the third section orders,

Third section—in retreat—guide right;

and immediately the officer of the train orders,

Caissons—in retreat—guide right.

At the word MARCH, repeated by the same chiefs, the third section marches in retreat; the other sections arrange themselves successively in the column (as in No. 5) except that the command, *Sections—right oblique*, must be followed by the command, *Caissons—right oblique*, given by the officer of the train, who also immediately repeats the word MARCH.

The column may be formed in the same manner on the first section; but the left should be in front, in order to resume the order of battle to the front, by wheeling to the left-about.

ARTICLE THIRD.

Being in Line at a Halt, to break into Column by Half-Batteries.

1st. To the Front.
2d. To the Right (or Left.)
3d. From the Right to march to the Left, and the Reverse.
4th. In Retreat.

---

10. 1st. *To break into Column of Half-Batteries to the Front.*

(*Pl.* XXI.) The captain commands,

1. *Attention.* 2. *On right half-battery—front into column.* 3. MARCH.

At the second command, the officer of the train orders,

Caissons—forward—trot—MARCH;

and the line of caissons closes on that of the pieces.

At the same command, the chief of the right half-battery orders,

Right half-battery—forward—guide left.

At the word MARCH, repeated by the chief of the right half-battery and which shall be given when the line of caissons has arrived within the length of a piece of the line of pieces, the right half-battery moves to the front, and the rest of the movement is executed as has been prescribed

---

* In horse-artillery, the squads wheel to the left-about.

† In horse-artillery, the squads close up at the same time as the pieces.

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for the same formation by sections, substituting the word *half-battery* for *section*.

The formation may be made in like manner on the left half-battery.

---

11. 2d. *To break into Column of Half-Batterics to the Right.*

(*Pl.* XXII.) The captain commands,

1. *Attention.* 2. *By half-batteries—right into column.* 3. MARCH.

At the second command, the line of caissons closes on that of the pieces The chiefs of half-batteries order,

Half-battery—right wheel;

and at the word MARCH, repeated by the chiefs of the half-batteries, the movement is executed in the same manner as has been prescribed for the formation of sections, substituting the word *half-battery* for *section*.

The formation in column of half-batteries to the left, is executed in the same manner.

---

12. 3d. *To break into Column of Half-Batteries from the Right, to march to the Left.*

(*Pl.* XXIII.) The captain commands,

1. *Attention.* 2. *Half-batteries—break from the right to march to the left.* 3. MARCH.

At the second command, the line of caissons closes on the line *of pieces*. The chief of the right half-battery orders,

Right half-battery—forward—guide left.

At the word MARCH, repeated by the chief of the right half-battery, the movement is executed as has been prescribed for the same formation by sections, substituting the word *half-battery* for *section*.

To break from the left, to march to the right, is performed in like manner, and by similar words of command.

---

13. 4th. *To break into Column of Half-Batteries, in Retreat.*

The captain intending to execute this movement must first (as in Nos. 4 and 9) bring the whole battery to the left-about. (*Pl.* XXIV.) This being accomplished, he commands,

1. *Attention.* 2. *By half-batteries—in retreat—into column.* 3. MARCH.

At the second command, the chiefs of half-batteries close the pieces on the caissons, and when they have arrived within the length of a piece, the chief of the right half-battery commands,

Half-battery—in retreat—guide right;

and the officer of the train immediately orders,

Caissons—in retreat—guide right.

At the word MARCH, repeated by the same chiefs, the movement is executed as has been prescribed for the same formation by sections, substituting the word *half-battery* for *section*.

14. If the battery be formed in retreat, either in line or in battery, and it be intended to break into column, the captain would first, by wheeling to the left-about, form line to the front, except in cases where he may wish to form a column in retreat.

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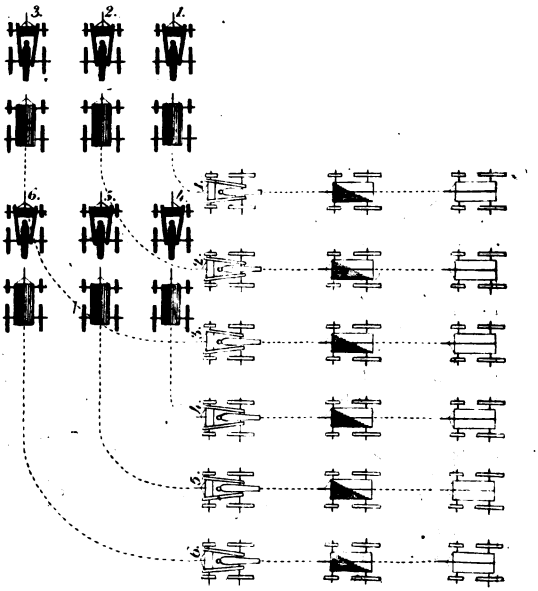
1. Attention.
2. By half-batteries right into column.
3. March.



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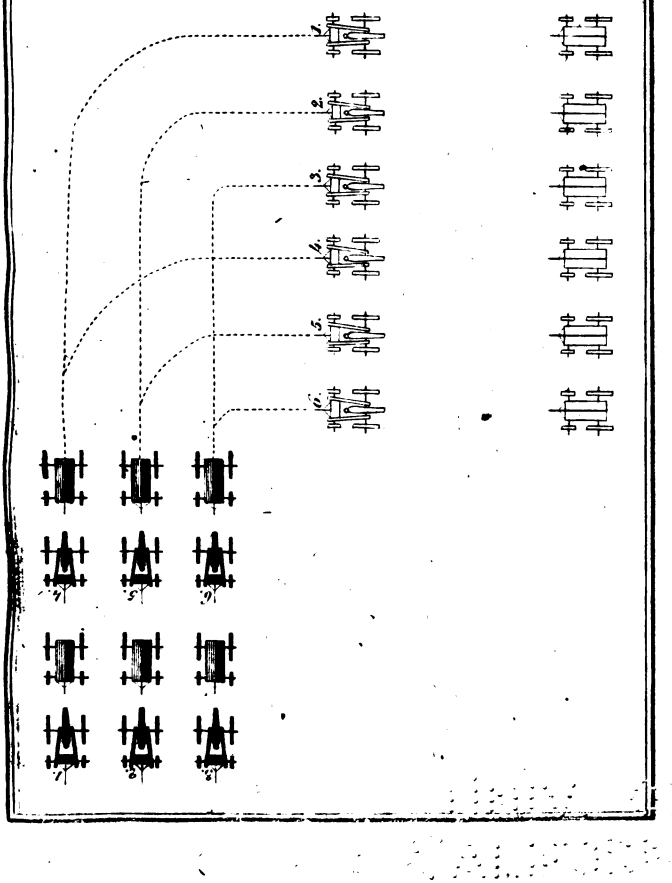
To break into column of half-batteries from the right to march to the left.

Pl. XXIII.

1. Attention.

2. Half-batteries break from the right to march to the left.

3. March.



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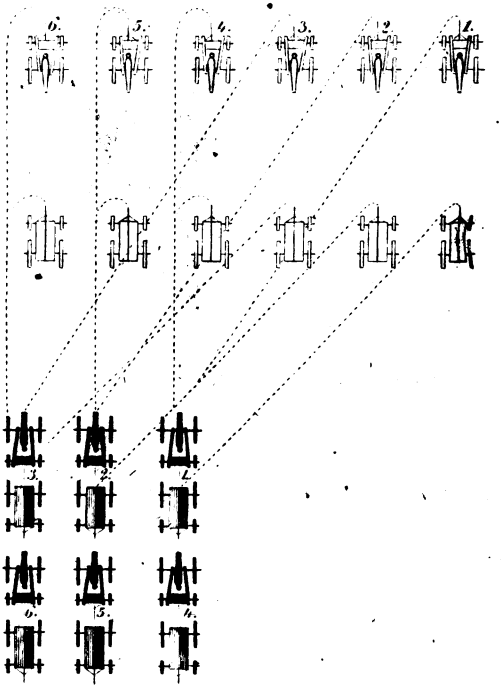
1. Attention.
2. By half batteries in retreat into column.
3. March.



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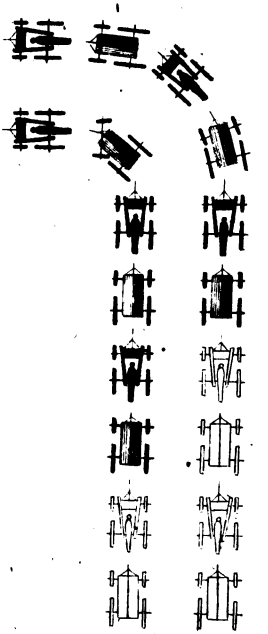
1. Head of column left wheel.



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PART II.

TO MARCH IN COLUMN, CHANGE DIRECTION, AND HALT THE COLUMN; TO FORM SECTIONS, HALF-BATTERIES, AND BATTERY; AND TO BREAK THEM OFF.

ARTICLE FIRST.

To march in Column, change Direction, and halt the Column.

15. 1st. *To march in Column, Right in Front.*

The captain commands,

1. *Attention.* 2. *Column—forward—guide left.* 3. MARCH.

At the word MARCH, repeated by the chiefs of sections, the column commences its movement, and is conducted by the chief of the piece by the side of the named guide.

The words of command are the same for a column of pieces, except that the guide is not named

16. 2d. *To change Direction on the March.*

The captain commands,

Head of column—right (or *left*) *wheel.*

As soon as this command is given, the chief of the first section orders,

First section—right (or *left*) *wheel.*

(*Pl.* XXV.) The section makes a wheel to the right (or left) on a movable pivot; that is to say, the pivot-piece describes the arc of a circle, in such manner as to clear the wheeling point.

In foot-artillery, the pivot-piece slackens the pace; in horse-artillery, the wheeling flank trots. This is a general rule, in all wheelings on a movable pivot.

When the wheel is completed, the chief of the first section orders, *Forward*, and the section resumes its forward march.

The chiefs of the other sections wheel their sections, in succession, on the same ground as the first, and by the same words of command.

If the column be in retreat, the chiefs of sections repeat, in succession, the command, *Head of column—right* (or *left*) *wheel*, when their caissons have arrived at the wheeling point, and the senior non-commissioned officer of the caissons of each section gives the command,

Caissons—right (or *left*) *wheel.*

What has been said here is applicable also to the column of half-batteries.

In column of pieces, the word of command of the captain is the same; the chiefs of sections give none.

17. 3d. *To halt the Column.*

The captain commands,

1. *Attention.* 2. *Column.* 3. HALT.

At the word HALT, repeated by the chiefs of sections, each division of the column halts.

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ARTICLE SECOND.

To form Sections, Half-Batteries, and Battery.

18 1st. *To form Sections.*

(*Pl.* XXVI.) Being in column of pieces, on a march, right in front, the captain commands,

1. *Attention.* 2. *Form sections.* 3. MARCH.

At the second command, the chief of the first section orders,

Form sections.

At the word MARCH, repeated by the chief of the first section, the second piece, conducted by its chief, and followed by its caisson, moves up abreast the first piece, at the length of a piece on its left.

The third piece having arrived on the ground where the first section was formed, the chief of the second section forms his section in the same manner and by the same commands.

In foot-artillery, the even pieces lengthen the step; the head of the column slackens the pace, so as to make it easy for the sections to form, and close to their proper distance. In horse-artillery, the chiefs of the second and third sections give the word *Trot*, and the head of the column does not alter the pace.

The sections being formed, the captain commands,

Guide left.

At this command, the head of the column resumes the ordinary *pace.*

To form sections, left in front, the odd pieces oblique to the right, by similar commands.

In retreat, the chiefs of sections repeat in succession the command, *Form section*, and the chiefs of caissons execute with their caissons movements similar to those of the pieces in forming to the front.

19. 2d. *To form Half-Batteries.*

Half-batteries are formed by similar movements and commands, substituting the word *half-battery* for *section.* The caissons slacken the pace, to take their distances, the length of a piece from the line of pieces.

20. Being in column of sections, if it be necessary to form column of half-batteries, (which should be avoided if possible,) the chief of the second section commands,

Third piece—left oblique; Fourth piece—right oblique.

At the word MARCH, given by the captain, the third piece takes its position on the left of the first section, and the fourth piece takes its place in rear of the first piece. The third section obliques to the left, and takes its position by the side of the fourth piece.

21. 3d. *To form the Battery.*

FIRST CASE. *Being in Column of Sections on a March, Right in Front.*

(*Pl.* XXVII.) The captain commands,

1. *Attention.* 2. *Front into line.* 3. MARCH.

At the second command, the chief of the first section orders,

First section—forward;

the chiefs of the other sections order,

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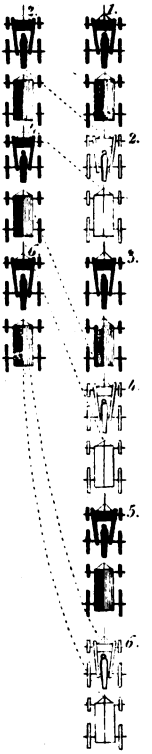
Being in column of pieces right in front on a march to form sections.

Pl. XXVI.

1. Attention.
2. Form sections.
3. March.



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*Second (or third) section—left oblique.**

At the word MARCH, repeated by the chiefs of sections, who follow it by the command *Guide right*, the first section continues to march in the original direction. The other sections, having gained their intervals to the left, are then dressed by their chiefs, who give the word *Forward*, and they move up abreast the first section.†

The caissons oblique at the same time and in the same manner as their respective sections. The caissons of the first section slacken the pace until they are at the desired distance from the pieces. The caissons of the other sections move up, and align themselves on those of the first.

When the line is formed, the captain commands,

Guide left, (or *right*.)‡

The column may be brought into line, when the left is in front, by applying to the third section what has been said of the first, and substituting the word *right* for *left*.

---

22. SECOND CASE. *Being in Column on the second Section.*

The captain commands,

1. *Attention.* 2. *Front into line.* 3. MARCH.

At the second command, the chief of the second section orders,

Second section—forward—guide right;

the chief of the first section,

First section—pieces—right oblique;§

the chief of the third section,

Third section—pieces—left oblique.§

At the word MARCH, repeated by the chiefs of the sections, the second continues its march to the front. The pieces of the other sections gain their intervals by obliquing, are dressed by their respective chiefs, and take the pace from the second section when they arrive on a line with it.

The caissons of the second section slacken the pace until they have gained their distances. The other caissons follow their pieces until they are on a line with the caissons of the second section.

When the line is formed, the captain commands,

Guide right, (or *left*.)

---

23. THIRD CASE. *Being in Column of Half-Batteries.*

The line is formed by the same means and words of command as in the first case.

ARTICLE THIRD.

To break off from Sections, Half-Batteries, and Battery.

24. 1st. *Being in Column of Sections, Right in Front, to break off.*

(*Pl.* XXVIII.) The captain commands,

---

* In horse-artillery, they add, *Trot*.

† In foot-artillery, the head of the column slackens the pace very much, and the other sections quicken the pace. In horse-artillery, when the rear sections have arrived within four paces of the line of the first section, their chiefs command, *Walk—march*, and they take the pace from the first.

‡ In foot-artillery, at this word, the ordinary pace is resumed.

§ In foot-artillery, these pieces quicken the pace; and in horse-artillery, the chiefs of sections command, *Trot*.

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1. *Attention.* 2. *Pieces—break off.** 3. MARCH.

At the second command, the chief of the first section orders,

Second piece—right oblique.

At the word MARCH, repeated by the chief of the first section, the second piece obliques to the right, to enter the column. The caisson follows the piece.

The second section having arrived on the ground where the first broke off, its chief breaks it in the same manner. The third section does the same.

When the left is in front, sections are broken by causing the odd pieces to oblique to the left.

In retreat, the chiefs of sections repeat in succession the command, *Pieces—break off*, and each chief of caissons executes, with his caisson, movements similar to those of the pieces in the formation to the front.

25. 2d. Column of half-batteries may be broken off by similar means and words of command, substituting the word *half-battery* for *section*.

26. If, from column of half-batteries, it be necessary to form column of sections, (which should be avoided if possible,) the third piece slackens the pace and obliques to the right, to take its place in rear of the first piece; the fourth obliques to the left, to take its place in rear of the second: the third section obliques to the right, and arranges its files in the column. Column of half-batteries, left in front, or in retreat, may be broken off by similar means and words of command.

---

27. 3d. *Marching in Line, to break off.*

FIRST CASE. *By the first Section.*

The captain commands,

1. *Attention.* 2. *By sections—break off.*† 3. MARCH.

At the second command, the caissons close on their pieces.

The chief of the first section commands,

First section—forward—guide left;

the chiefs of the other sections command,

..... *section—right oblique.*‡

At the word MARCH, repeated by the chiefs of sections, the first section continues to march in the same direction. The second and third sections, conducted by their chiefs, and followed by their caissons, oblique to the right, and arrange themselves in the column, at the command *Forward*, given by their chiefs.

When all the sections are broken off, and the column formed, the captain commands,

Guide left,

and the head of the column resumes the ordinary pace.§

---

* In foot-artillery, the head of the column quickens the pace. In horse-artillery, the captain commands, *Head of column—trot*, which is repeated successively by all the chiefs of sections. When all the sections are broken, the head of the column resumes the ordinary pace at the command, *Walk—march*, given by the captain.

† In horse-artillery, the captain commands, *Head of column—trot.*

‡ In foot-artillery, the first section quickens the pace. In horse-artillery, the chiefs of sections command, *Trot.*

§ In horse-artillery, the captain commands, *Walk—march*

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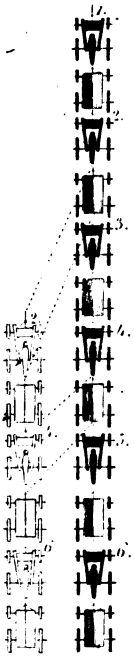
1. *Attention.*
2. *Pieces break off.*
3. *March.*



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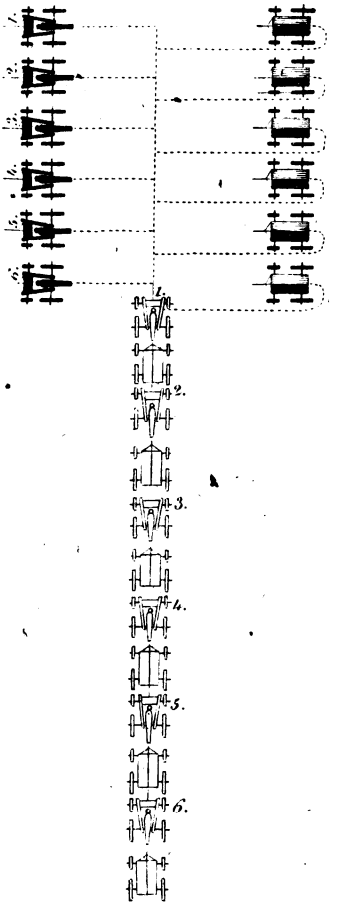
1. *Attention.*
2. *Left into line.*
3. *March.*



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28 SECOND CASE. *To break off by the centre Section.*

The captain commands,

1. *Attention.* 2. *By centre section—break off.** 3. MARCH.

At the second command, the caissons close on the pieces.

The chief of the second section commands,

*Second section—forward ;**

the chief of the first,

*By pieces—left into column ;**

the chief of the third,

*By pieces—right into column.**

At the word MARCH, repeated by the chiefs of sections, the second section continues to march in the same direction, and the pieces of the first and third sections, followed by their caissons, wheel to the left and right, and move on to arrange themselves in the column, as has been prescribed for the same movement from a halt; (No. 6.)

29. THIRD CASE. *To break off by Half-Batteries.*

The captain commands,

1. *Attention.* 2. *By half-batteries—break off.* 3. MARCH.

The movement is executed as has been explained in breaking off by sections, and substituting, throughout, the word *half-battery* for *section.*

With the left in front, breaking off by sections and half-batteries is executed in a similar manner, the word of command of the captain being always preceded by the number of the section or half-battery by which he wishes to break off, and substituting *left* for *right.*

Marching *in retreat*, to break off by sections or half-batteries, is executed by commands and means the reverse of those for the order in advance.

PART III.

DIFFERENT METHODS OF FORMING FROM COLUMN IN LINE OR IN BATTERY.

ARTICLE FIRST.

Being in Column of Pieces, Right (or Left) in Front, to form Line.

1*st.* To the Front.	3*d.* On the Right (or Left.)
2*d.* To the Right (or Left.)	4*th.* Faced to the Rear.

Being in Column of Pieces, Right in Front, on a March.

30. 1st. *To form Line to the Front.*

(*Pl.* XXVII.) The captain commands,

1. *Attention.* 2. *Front into line.* 3. MARCH.

At the second command, the chief of the first section orders,

Front into line ;

the other chiefs of sections,

Pieces—left oblique.

* In horse-artillery, the chiefs of sections command, *Trot.*

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At the word MARCH, repeated by all the chiefs of sections, the first piece moves forward, and is established on the line by the chief of its section. All the other pieces oblique to the left, until they have gained their respective intervals, when they again move to the front, under direction of the chief of each piece, who halts his piece four paces in rear of the line, on which they are dressed by the chiefs of sections.

This formation is made in the same manner, left in front; all the pieces obliquing to the right, except the sixth, which marches straight forward.

---

31. 2d. *To form Line to the Left.*

(*Pl.* XXIX.) The captain commands,

1. *Attention.* 2. *Left into line.* 3. MARCH.

At the second command, the chief of the first section orders,

First piece—left wheel;

and the chief of the caissons of the first section,

First caisson—right wheel.

At the word MARCH, repeated by the same chiefs, the first piece wheels to the left, and advances directly to the line, on which it is established by the chief of its section. All the other pieces move straight forward, and successively wheel to the left, when they are opposite the points they are respectively to occupy in line, where they are halted by their respective chiefs, and dressed by the chiefs of their sections.

The first caisson wheels to the right, and then moves on far enough to gain its desired distance from its piece, in rear of which it is established by two successive wheels to the left. The other caissons, following their pieces, wheel to the right, as soon as the latter wheel to the left, and then arrange themselves in their rear, in the same manner as the first caisson, on which they are aligned.

When the left is in front, the formation *right into line* is made in the same manner, substituting, in what has been said, the word *right* for *left*, and reciprocally.

---

32. 3d. *To form Line on the Right.*

(*Pl.* XXX.) The captain commands,

1. *Attention.* 2. *On right into line.* 3. MARCH.

At the second command, the chief of the first section orders,

First piece—right wheel;

and the chief of the caissons of this section,

First caisson—left wheel.

At the word MARCH, repeated by the same chiefs, the first piece wheels to the right, marches about twenty paces, and is established on the line by the chief of its section. All the other pieces move straight forward, and are wheeled in succession to the right, when they arrive opposite the points they are to occupy on the line, on which they are halted by their respective chiefs, and are aligned by the chiefs of sections.

The first caisson wheels to the left, and then moves on far enough to gain its desired distance from its piece, in rear of which it is established by two successive wheels to the right. The other caissons, following their pieces, wheel to the left, as soon as the latter wheel to the right, and are established in rear of them, in the same manner as the first caisson, on which they are aligned.

When the left is in front, the formation on the left into line is made in

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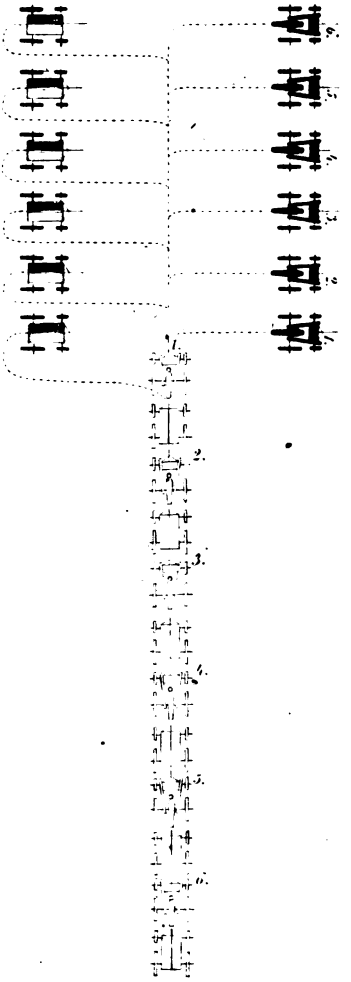
1. *Attention.*
2. *On right into line.*
3. *March.*



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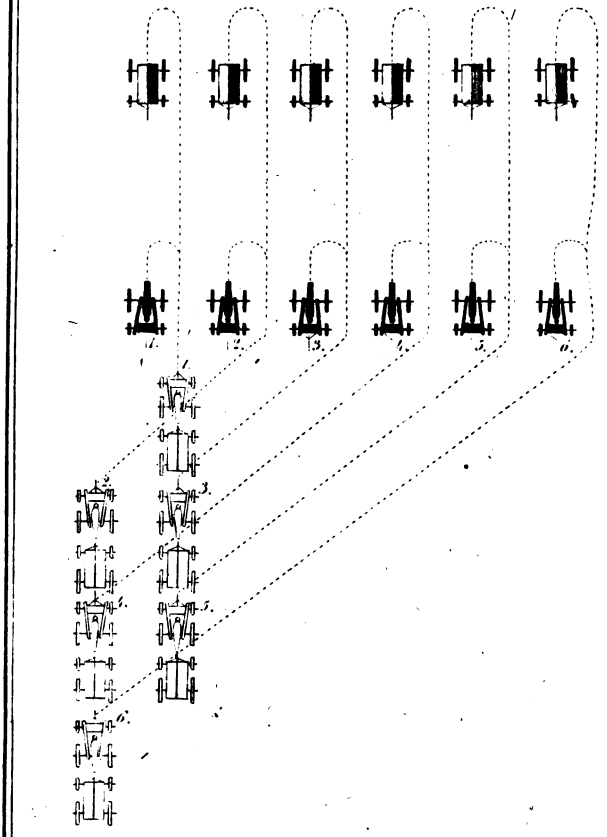
1. Attention.
2. Into line faced to the rear.
3. Pieces right Oblique.
4. March.



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the same manner, substituting, in all that has been here said, the word *left* for *right*, and reciprocally.

33. If the ground will permit, it is better to execute the two preceding manœuvres *by pieces;* that is to say, that the pieces, followed by their caissons, after wheeling, move forward, the caissons executing the same movements as their pieces, and halting as soon as they have unmasked the column. The pieces halt when they are at the desired distance from their caissons. The commands of the captain then are,

By pieces—left (or *right*) *into line.*

By pieces—on the right (or *left*) *into line.*

---

34. 4th. *To form Line faced to the Rear.*

(*Pl.* XXXI.) The captain commands,

1. *Attention.* 2. *Into line—faced to the rear.* 3. *Pieces—right oblique.* 4. MARCH.

At the word MARCH, repeated by the chiefs of sections, the first piece moves forward the length of a piece, wheels to the left-about, and halts. All the others oblique to the right, and, followed by their caissons, move in succession, in the shortest line, to the point they should occupy in the line, on which they are established, like the first, by a wheel to the left-about. They are dressed to the right by their chiefs of sections.

The caissons pass their pieces, and are in succession established by wheeling to the left-about at their distance from the line of pieces.

The same movement is executed by similar words of command, when the left is in front, all the pieces except the sixth obliquing to the left.

The foregoing manœuvres (column of pieces) being used only for the park, have been explained in the most concise manner, and by the most simple methods. For the same reason, the formations by inversion, and those in retreat, are withheld. This order (column of pieces) should be avoided in all cases as much as possible.

ARTICLE SECOND.

Being in Column of Sections, to form in Line, or in Battery.

FIRST CASE. *Right or Left in Front.*

1*st.* To the Front.	3*d.* On the Right (or Left.)
2*d.* To the Left (or Right.)	4*th.* Faced to the Rear.

SECOND CASE. *The centre Section in Front.*

1*st.* To the Front.	3*d.* Faced to the Rear, (by inversion.)
2*d.* To the Right (or Left.)	

FIRST CASE. *Column of Sections marching Right in Front.*

35. 1st. *To form Line to the Front.*

The captain commands,

1. *Attention.* 2. *Front into line—guide right.* 3. MARCH.

At the second command, the dressing is made on the right-hand file. The chief of the first section commands,

First section—forward—guide right;

the chiefs of the other sections,

..... *section—left oblique.*

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At the word MARCH, repeated by the chiefs of sections, the pieces of the first section move forward, about twice the length of the piece, and the chief of this section commands,

First section—halt. Right dress.

When the second section is unmasked, the caissons of the first halt by command of their chiefs.

The second and third sections oblique to the left. When the second section has gained its interval, it resumes its direction to the front by command of its chief,

Forward—guide right.

It halts four paces in rear of the line of the first, and is established on the same line by the commands,

Second section—halt. Right dress.

The caissons follow their pieces, obliquing as *they* do, but take care to slacken the pace, so as to arrive on the line with the caissons of the first section at the same time that the pieces arrive near *their* line.

The third section is arranged in the same manner, in regard to the second, by similar means and words of command.

---

36. *To form to the Front, in Battery.*

The head of the column having arrived within about twice the length of a piece from the line on which the battery is to be formed, the captain commands,

1. *Attention.* 2. *Front into battery—guide right.* 3. MARCH.

At the second command, the dressing is made on the right file.

The chief of the first section commands,

*First section—forward—guide right;**

the chiefs of the other sections,

..... *section—left oblique.*

At the word MARCH, repeated by the chiefs of sections, the first section moves forward, and, when its caissons have unmasked the pieces of the second section, its chief, in foot-artillery, commands,

Into battery—MARCH.

At this command, the caissons halt, and the pieces wheel to the left-about, and are halted and dressed by the commands,

....., *section—halt. Left dress.*†

In horse-artillery, the chief of the first section commands,

Front into battery—MARCH.‡

At the word MARCH, which must not be given until the pieces have moved the length of a piece to the front, the pieces wheel to the left-about, and are immediately halted and dressed by their chiefs.

The other sections oblique to the left, and are moved up to the line, on the same principles as in the formation *front into line.* They are then formed *in battery* in the same manner as the first section.

When the left is in front, the formation to the front, *in line* or *in battery*, is effected by applying to the third section what has been said of the first, and substituting the word *left* for *right*, and reciprocally.

---

* In horse-artillery, the chiefs of sections command, *Trot.*

† *General rule.*—In the formation *in battery* the alignment is always made on the piece which serves as guide of the column.

‡ In horse-artillery, at the command, *Front into battery*, the squads halt and dismount, by word of command from their chiefs.

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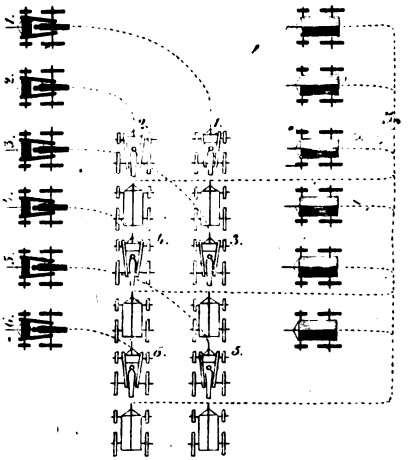
1. Attention.
2. Left into line.
3. March.



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37. ***Being in Retreat, to form Line in Retreat.***

The captain commands,

1. *Attention.* 2. *In retreat—into line—guide right.* 3. MARCH.

At the second command, the chief of the third section orders,

Third section—in retreat—guide right.

The other chiefs of sections command,

..... *section—left oblique;*

the chief of the caissons of the third section,

Caissons—in retreat—guide right;

the chiefs of caissons of other sections,

Caissons—left oblique.

At the word MARCH, repeated by the same chiefs, the movement is executed in the same manner as in the formation to the front, applying to the caissons what has been said of the pieces, and the reverse.

38. If the column is in retreat, and it be required to form to the front in battery, to fire in the direction towards which it is marching, the captain commands,

In retreat—into battery.

The formation is executed in the same manner as that of *in retreat—into line*, except that the pieces pass by the caissons, and, proceeding about twice the length of a piece before them, wheel to the left-about.

39. (*Pl.* XXXIV.) There is then an inversion of the order of the two lines of the battery; and this generally occurs whenever one line, either that of the pieces, or that of the caissons, passes the other. But the natural order is resumed by one or the other line repassing; or, if it be desired to break into column, the natural order may be immediately resumed, the pieces breaking into sections to the left or right, and the caissons, which cannot follow the movement of their pieces, being formed in file by wheeling to the left or right, according to the side to which the sections broke, and then wheeling by the heads of sections to the left or right, in order to take their places in the column. The detail of this movement will be given hereafter. Thus, then, in every inversion, occasioned merely by one line having passed another, there are two methods of re-establishing the natural order,—either by re-forming in line, or by breaking into column.

40. If there be not sufficient ground on the flank, on which the formation is to be made, in the manœuvre *front into line*, or *into battery*, as has been detailed above, it may be executed on the opposite flank. The words of command and the means of execution are the same, except that the command of the captain is preceded by the words *by inversion;* and by the others the word *right* is substituted for *left*, and reciprocally. But then there is in the line an inversion of the order of the sections. This occurs whenever the sections oblique, or wheel to the side opposite the guide. It is evident, in this case, that the only method of resuming the natural order is, to break into column of sections; if in battery, to break in retreat; and, if in line, to break in the order of advance, (or to the front.)

---

41 **2d.** ***To form Line to the Left.***

(*Pl.* XXXII.) The column being at a halt, the captain commands,

1. *Attention.* 2. *Left into line.* 3. MARCH

At the second command, the chiefs of sections order,

..... *section—left wheel;*

the officer of the train,

Caissons—right wheel.

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At the word MARCH, repeated by the same chiefs, each section of pieces wheels to the left on a fixed pivot, and is halted by its chief of section, who, when the wheel is completed, commands,

..... *section—halt. Right dress.*

The caissons wheel to the right by caissons, unmasking their pieces, thus marching in separate and parallel columns. When the head of each has marched about twenty paces, the officer of the train commands,

Heads of columns—left wheel.

This movement is executed, and, each caisson having arrived opposite its piece, the officer of the train commands,

Caissons—left wheel—MARCH. *Halt. Right dress.*

At this last word, the caissons are aligned on the right.

42. In general, the formations on the flank are executed much more simply when the ground will permit the caissons to follow the movements of their pieces; or the reverse, in the order *in retreat:* then the entire sections wheel, and the caissons, or the pieces, if *in retreat*, halt as soon as the column is unmasked. To point out when the movement is to be performed in this manner, the captain commands,

By sections—left into line, (or *into battery.*)

---

43. *To form to the Left in Battery.*

(*Pl.* XXXIII.) The captain commands,

1. *Attention.* 2. *Left into battery.* 3. MARCH.

At the second command, the chiefs of sections order,

..... *section—left wheel;*

the officer of the train,

Caissons—right wheel.

At the word MARCH, repeated by the same chiefs, each section of pieces wheels to the left, on a fixed pivot. The wheel being completed, in foot-artillery, the chiefs of sections command,

Into battery—MARCH.

The pieces, conducted by their respective chiefs, wheel to the left-about, on their own ground, halt, and are then aligned by their chiefs of sections.

In horse-artillery, when the wheel is completed, the chiefs of sections command,

Front into battery—MARCH.

At this last command, which must not be given until the pieces have advanced to the front the length of a piece, they wheel to the left-about, halt, and are then aligned by their chiefs of sections.

As soon as the caissons have unmasked the pieces, the officer of the train gives the following commands:—

Head of column—left wheel; Caissons—left wheel—MARCH. *Halt. Right dress.*

If the left is in front, the formation to the right *in line* or *in battery* is made by similar means and words of command.

44. If the column is in retreat, the formation to the left or right is executed by applying to the pieces what has been said of the caissons, and the reverse.

The word of command for the captain is,

In retreat—left into line.

But, this movement being difficult to execute, whenever the ground will permit, the formation should be made by sections.

The captain commands,

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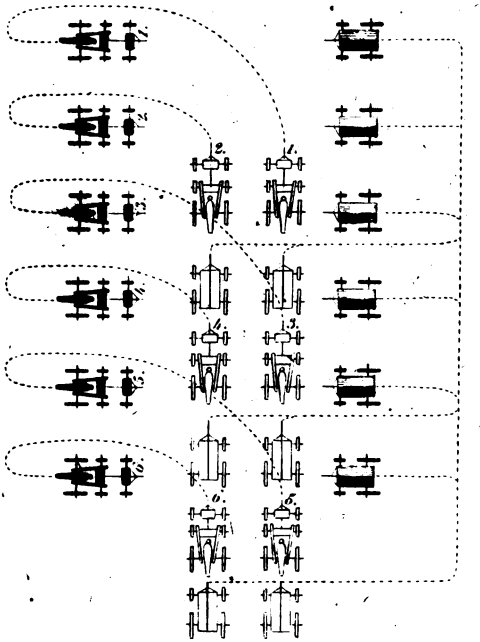
1. Attention.
2. Left into battery.
3. March.



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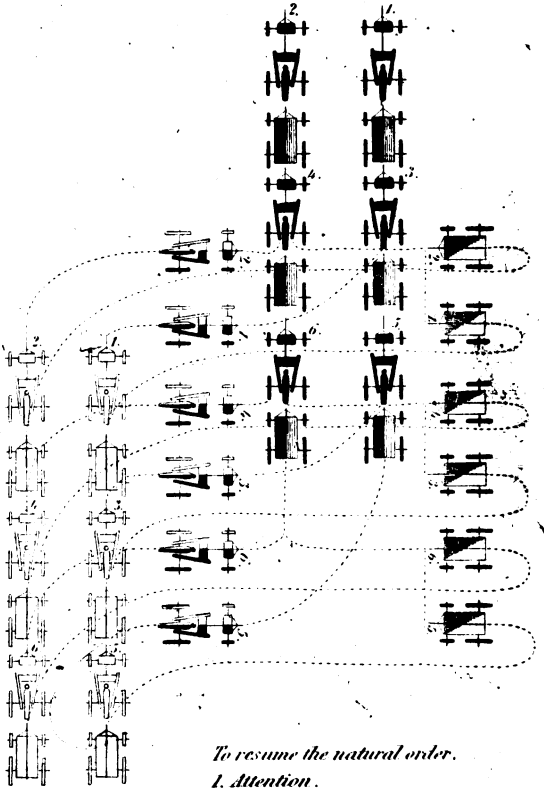
1. Attention.
2. By inversion, left into battery.
3. March.



To resume the natural order.
1. Attention.
2. By sections left into column.
3. March.

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By sections—in retreat—left into line

In this formation, *left into line* or *into battery*, the column is supposed to be halted; but it may be performed equally well while marching. But in this case, the pieces which are to serve as pivots halt, when the captain gives the word MARCH, and the rest of the movement is performed as has been prescribed.*

45. If there be not sufficient ground to the left, or if it be desirable to fire to the left by a more prompt manœuvre, the captain commands,

1. *Attention.* 2. *By inversion—left into battery.* 3. MARCH.

(*Pl.* XXXIV.) At the second command, the chiefs of sections order,

..... *section—right wheel;*

the officer of the train,

Caissons—right oblique—trot.

At the word MARCH, repeated by the same chiefs, the sections wheel to the right, and dress to the left. The caissons oblique to the right, passing by their pieces, leaving them on their left, and move to their positions in battery.†

There is then in the battery not only an inversion of the sections, but, moreover, an inversion between the line of pieces and that of caissons. To resume the natural order, after what has been above prescribed, it is necessary to move the line of pieces to the front of the line of caissons, and then break into column. But the first movement may be avoided, by breaking in the manner pointed out in No. 39.

46. The captain commands,

1. *Attention.* 2. *By sections—left* (or *right*) *into column.* 3. MARCH.

At the second command, the chiefs of sections order,

..... *section—left wheel;*

the officer of the train,

Caissons—right wheel—MARCH; *Head of sections—left wheel—trot*—MARCH;

and the caissons of each section arrange themselves in rear of their pieces by the command of their chief,

Caissons—right wheel—MARCH.

This method of breaking into column applies to all cases where there is an inversion between the line of pieces and that of the caissons.

47. To fire to the right, the formation is similar to that pointed out for firing to the left.

The captain commands,

1. *Attention.* 2. *By inversion—right into battery.* 3. MARCH.

At the second command, the chiefs of sections order,

..... *section—left wheel;*

the officer of the train,

Caissons—left oblique—trot.

At the word MARCH, repeated by the same chiefs, the sections wheel to the left, and dress. The caissons oblique to the left, passing by their pieces, leaving them to the left, and move to their stations in battery.

There is then an inversion between the two lines of the battery. The

* In general, the movements which have been described from a halt, in order that they may be performed with more regularity, may, at least the greater part of them, be executed with equal ease while marching.

† In horse-artillery, the squads, preceding the caissons, pass by their pieces, leaving them on their left, and take their positions in battery, by wheeling to the left-about. This applies to all cases where the caissons are to pass by their pieces.

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natural order is resumed by moving the line of pieces beyond that of the caissons, or by breaking into column by the preceding method.

48. 3d. *To form Line on the Right.*

The captain commands,

1. *Attention.* 2. *On right—into line—guide right.* 3. MARCH

At the word MARCH, the chief of the first section commands,

Right wheel—forward—guide right;

and, when the section has marched about twenty paces,

First section—halt. Right dress.

The chief of the caissons of the first section commands,

Caissons—left wheel—trot—MARCH.

Each caisson wheels to the left on a movable pivot.

When the head of the column has marched about twenty paces, the same chief commands,

Head of column—right wheel;

and, when the caissons arrive in rear of their pieces,

Caissons—right wheel—MARCH. *Halt. Right dress.*

Each caisson ranges itself exactly in rear of its piece.

During this time, the second section, followed by its caissons, has continued to march to the front. When the third piece has arrived abreast the point which it is to occupy, the chief of the section commands,

Second section—right wheel—forward—guide right.

This section moves into line as the first.

The caissons of the second section manœuvre like those of the first, by the command of their chief, passing to the left of, and near the second caisson; and so on for the third section.

The formation from column *in retreat*, on the left (or right) into line, may be executed by applying to the pieces what has just been prescribed for the caissons; but it is better to execute it by sections, whenever the ground will permit.

49. *To form in Battery on the Right.*

The captain commands,

1. *Attention.* 2. *On right—into battery—guide right.* 3. MARCH.

The sections wheel in succession on a movable pivot, at the command of their chiefs, who then move them forward; and, in foot-artillery, the chiefs of sections command,

Into battery—MARCH.

The pieces, conducted by their chiefs, make a wheel to the left-about on their own ground, halt, and are then dressed by the chiefs of sections.

In horse-artillery, the chiefs of sections command,

Front into battery—MARCH.

At this last word of command, which must not be given until the pieces have moved the length of a piece to the front, the pieces wheel to the left-about, and are then halted and dressed by their chiefs of sections.

In each section, the chief of the caissons commands,

Caissons—left wheel—trot—MARCH;

and then,

Head of column—right wheel,

as soon as the left wheel is executed.

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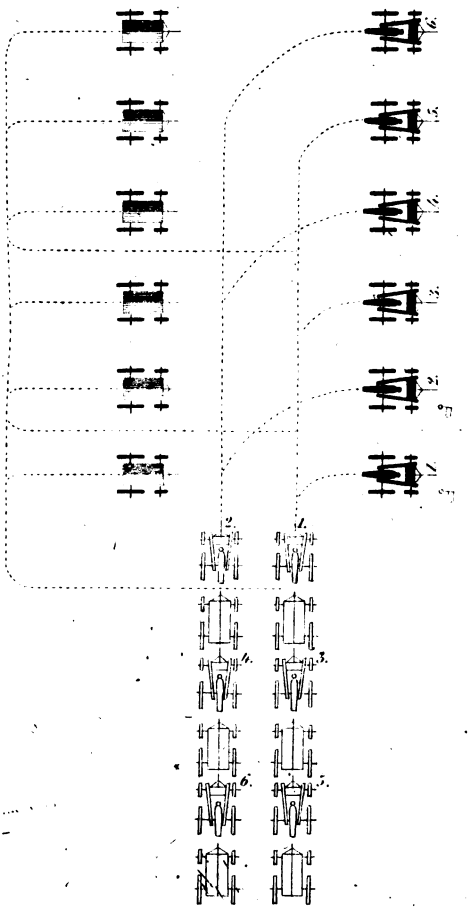
1. Attention.
2. On right into line, guide right.
3. March.



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The caissons then arrange themselves in their positions in battery, by the words of command,

Caissons—right wheel—MARCH. *Halt. Right dress.*

When the left is in front, the formation *in line* or *in battery* is made by similar means and words of command.

The movement above detailed is inconvenient, because the column passes between the pieces and caissons of the sections already formed. It should therefore be executed by sections, whenever the ground will permit.

50. 4th. *To form Line faced to the Rear.*

(*Pl.* XXXI.) The captain commands,

1. *Attention.* 2. *Into line—faced to the rear.* 3. *Odd pieces—forward.* 4. *Whole—right oblique.* 5. MARCH.

At the third command, the right file quickens the pace, the left file slackens it;* and, when each odd piece is opposite the even piece of the section before it, the captain gives the fourth command.

At the word MARCH, repeated by the chiefs of sections, all the pieces, except the first, oblique to the right, and each, followed by its caisson, moves by the nearest route to the point which it is to occupy in the line. Each even piece, to effect this, passes immediately in rear of the caisson of the odd piece of its section.

When the chief of the first section sees that the second piece has cleared its right file, he halts the first piece, which wheels to the left-about. The other pieces arrive in succession on the line, pass it the length of a piece, wheel to the left-about, and are dressed to the right by the commands of the chiefs of their respective sections.

The caissons follow their pieces, pass by them while they are wheeling, move to their places on the line, and then wheel to the left-about.

51. *To form in Battery, faced to the Rear.*

The captain commands,

1. *Attention.* 2. *Into battery—faced to the rear.* 3. *Odd pieces—forward.* 4. *Whole—right oblique.* 5. MARCH.

The movement is executed as has been detailed for the formation *into line—faced to the rear*, except that the pieces, instead of passing the line, halt on the line, and dress by the left. The caissons pass their pieces at a trot, and take their places in battery, as in retreat.

In this formation, either in line or in battery, there are two successive inversions, which destroy each other.

The first is occasioned by obliquing to the right with the right in front, by which the pieces arrive on the line in inverted order, as in line in retreat; and the line of caissons, passing by that of the pieces, completes, by this second inversion, the order, in line or in battery, in retreat; so that the formation, whether it be continued in battery, or brought into line by a left-about wheel, becomes the natural order.

This formation is executed, left in front, by inverse means. The even pieces quicken the pace, and all, except the sixth, oblique to the left.

52. *To fire to the Rear by a more prompt Manœuvre.*

The captain commands,

1. *Attention.* 2. *By inversion—into battery—faced to the rear.* 3. MARCH.

The movement is executed as in the formation *front into line.*

* In horse-artillery, the right file trots.

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The caissons pass by their pieces at a trot, and take their places in battery.

The natural order is restored, either in line or in column, by the means already mentioned.

---

53. SECOND CASE. *Being in Column, on the centre Section*

1st. *To form Line to the Front.*

The captain commands,

1. *Attention.* 2. *Front into line.* 3. MARCH.

At the second command, the chief of the second section orders,

Second section—forward—guide right;

the chief of the first section,

Pieces—right oblique;

and the chief of the third section,

Pieces—left oblique.

At the word MARCH, repeated by the chiefs of sections, the second section moves on to the line, and is there halted, and dressed by its chief The caissons slacken the pace, and halt, when they are at the desired distance, and when their pieces are established on the line. The pieces of the other sections move obliquely up to the line of the second section, are again directed to the front, and halted by their respective chiefs, and are then dressed by their chiefs of sections. The caissons follow their pieces, and halt abreast the caissons of the second section.

The formation to the front *into battery* is executed in the same manner, substituting, in the commands, the words *into battery* for *into line,* and conforming to what has been said in No. 36 for the same formation with the right in front.

---

54. 2d. *To form Line to the Left.*

(*Pl.* XXXVI.) The captain commands,

1. *Attention.* 2. *Left into line.* 3. MARCH.

At the second command, the chief of the second section orders,

Second section—left wheel;

the chiefs of the first and third sections,

Column—forward.

At the word MARCH, repeated by the chiefs of sections, the second forms to the left into line, as in No. 41. The third and first sections march straight forward. When the fifth piece has closed on the fourth, the chief of the third section orders,

Left into line—MARCH,

and the movement is executed as in No. 31, except that the caissons remain between the two columns until they are unmasked by that of the right.

When the second piece has arrived opposite its place in line, the chief of the first section commands,

Left into line—MARCH;

and the movement is executed as in No. 32.

The formation *right into line* is made in the same manner, applying to the first section what has been said of the third, and reciprocally.

The formation *left* or *right into battery* is made in like manner, substituting, in the commands, the words *into battery* for *into line;* and each section, having arrived on the line, as in the preceding movement, is then formed *in battery.*

If the ground permit, it will be found more convenient to execute the

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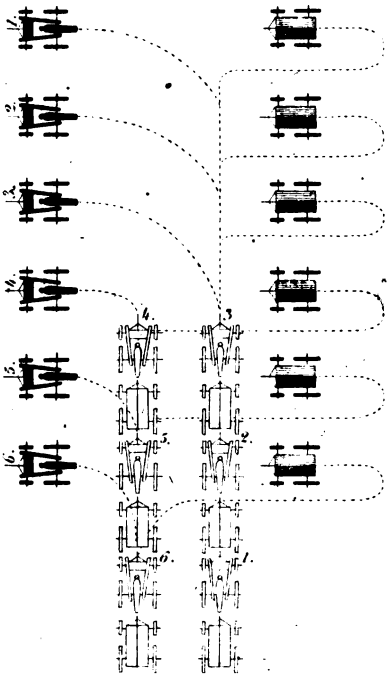
1. Attention.
2. Left into line.
3. March.



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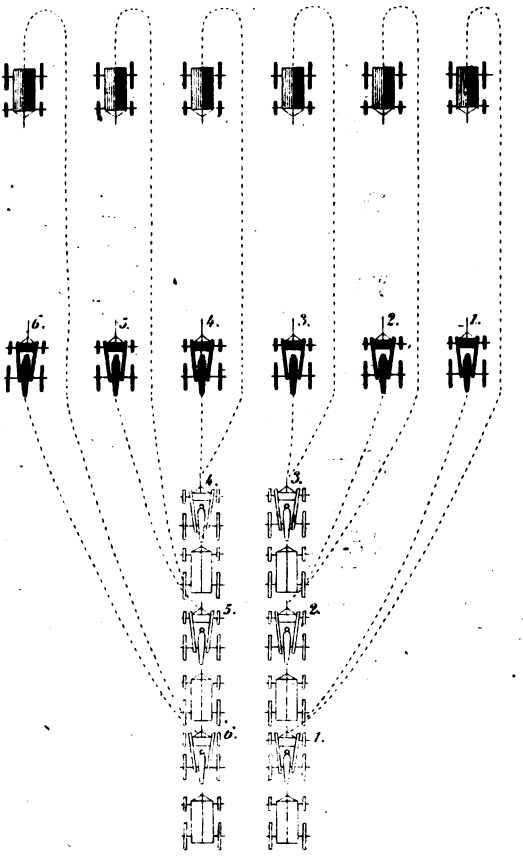
In column on centre section, to form line faced to the rear, by inversion.

1. Attention.

2. By inversion into line faced to the rear.

3. March.

Pl. XXXVII.



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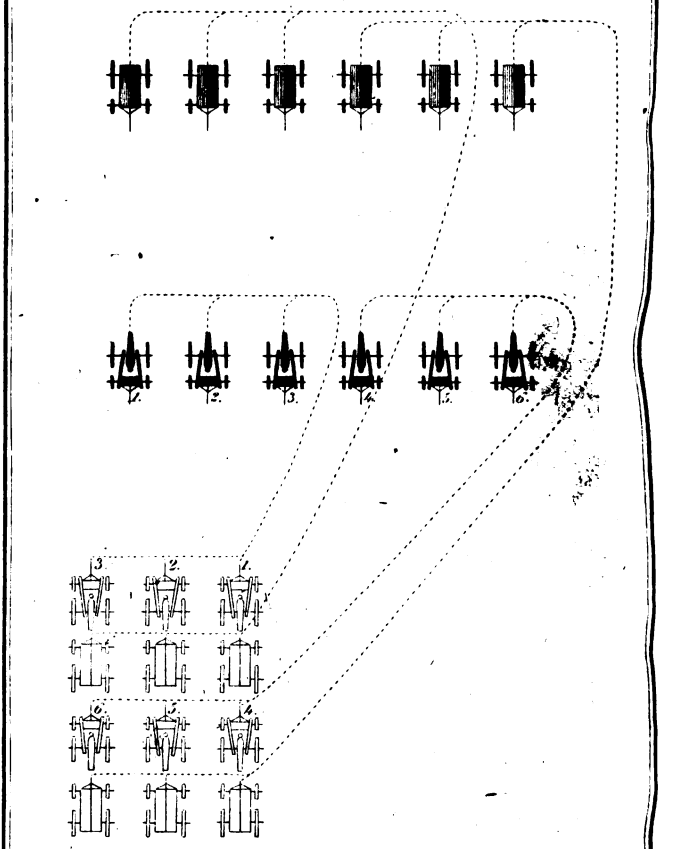
1. Attention.
2. Into line faced to the rear.
3. March.



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above movements by forming by pieces left or right into line, on the principles laid down for that sort of formation.

55. 3d. *To form Line faced to the Rear.*

This movement, being very complicated in the natural order, must be made, as far as possible, by inversion; and in this case

The captain commands,

1. *Attention.* 2. *By inversion—into line—faced to the rear.* 3. MARCH.

The chiefs of sections cause their pieces to execute the movement *front into line*, and then left-about wheel.

The caissons pass by their pieces, at a trot, to their stations in line, and there they also wheel to the left-about.

In the same manner the formation is made *by inversion into battery faced to the rear;* but in this case the pieces and caissons do not wheel to the left-about.

56. The natural order is restored by the methods given above. Nevertheless, if it be determined to execute this formation in the natural order, it may be done by first making a countermarch by sections, and then deploying by the command,

On second section—front into line.

The second section moves to the front, the third and first unmasking by wheeling by pieces and caissons to the left and right, and then again forming on the same line with the second section.

ARTICLE THIRD.

Being in Column of Half-Batteries, to form in Line or in Battery.

1*st.* To the Front. | 3*d.* On the Right (or Left.)
2*d.* To the Left (or Right.) | 4*th.* Faced to the Rear.

57. In the three first cases, the movements and words of command are absolutely the same as in the order by sections, substituting, in all that has been said, the word *half-battery* for *section.*

58. The formation *in line faced to the rear* being impracticable by the method given for the order by sections; to execute this movement, the captain commands, (*Pl.* XXXVIII.)

1. *Attention.* 2. *Into line—faced to the rear.* 3. MARCH.

At the second command, the chiefs of half-batteries order,

Pieces and caissons—right wheel.

At the word MARCH, repeated by the chiefs of half-batteries, the pieces and caissons wheel to the right, and each half-battery, marching by its flank and obliquing to the left, moves to the point where it should cross the line, which it passes, the length of a piece. The chief of each half-battery then commands,

Left wheel—forward; Pieces and caissons—left wheel—MARCH;

when the head of each half-battery has arrived opposite the point it is to occupy in the line of battle.

The formation *into battery faced to the rear* is made in the same manner, substituting, in the commands, *into battery* for *into line.* The chiefs of half-battery then command,

Pieces and caissons—right wheel,

when the heads of their half-batteries have arrived at the points they are to occupy.

The same movements may be executed by similar means, when the left is in front.

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PART IV.

MARCHING IN LINE, AND ALL THAT RELATES TO IT; MARCHING BY A FLANK; PASSING THE DEFILE; FROM LINE TO FORM IN BATTERY CHANGE OF FRONT; COUNTERMARCH.

ARTICLE FIRST.

To march in Line; change Direction; close Intervals; pass an Obstacle; halt the Battery, and align it.

59. 1st. *To march in Line.*

The battery being in line, the captain commands,

1. *Attention.* 2. *Battery—forward—guide right* (or *left.*) 3. MARCH.

At the second command, the designated guide places himself twelve paces in front of the chief of the piece on that flank, and faces to the direction indicated.

At the word MARCH, the whole move forward. The chief of the piece on the flank next the guide marches in the trace of the guide, preserving his distance; the others dress on him, and preserve between them *the* proper intervals. The chiefs of sections march on a line with *the chiefs* of pieces. The line of caissons follows the movement of that of *the pieces*, keeping always twice the length of a piece distant from it. Each caisson follows exactly the track of its piece.

60. To march in retreat, is done by similar means and words of command, substituting the words *in retreat* for *forward*, and applying to the pieces what has been directed for the caissons, and the reverse.

If, when the battery is formed *in retreat*, it be desired to march *to the front*, or the reverse, the captain will first cause the whole to wheel left-about. In the first case, the movement is continued by the command,

Forward—guide right, (or *left*,)

given when the wheel-about is nearly completed.

61. 2d. *To change Direction.*

(*Pl.* XXXIX.) The battery marching in line, the captain commands,

1. *Attention.* 2. *Right* (or *left*) *wheel.* 3. MARCH.

At the word MARCH, repeated by the chiefs of sections, the line of pieces makes its wheel in such a manner as to preserve the intervals of the pieces on the side of the pivot, and the alignment on the marching flank. The pivot piece takes care to clear the wheeling point, and slackens its pace; the marching flank quickens the pace.

In horse-artillery, the marching flank trots.

The movement being nearly completed, the captain commands,

Forward—MARCH.

At this command, all the pieces resume the forward march and ordinary pace. The line of caissons will wheel at the same point as that of the pieces, and in the same manner, at the command,

Right (or *left*) *wheel*,

given by the officer of the train, who afterwards directs this line again to the front by the word *Forward.*

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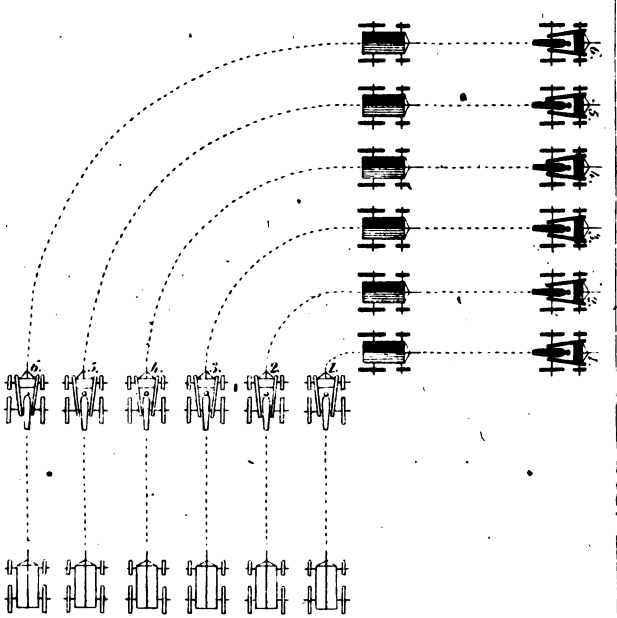
1. Attention.
2. Right wheel.
3. March.



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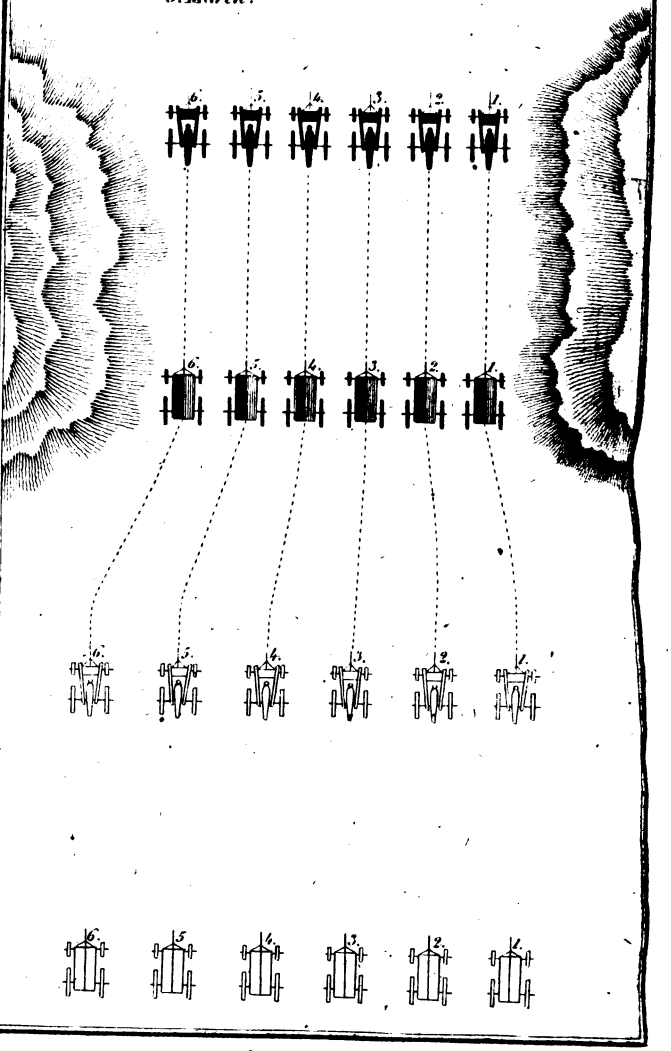
1. *Attention.*
2. *On-piece to-paces, close intervals.*
3. *March.*



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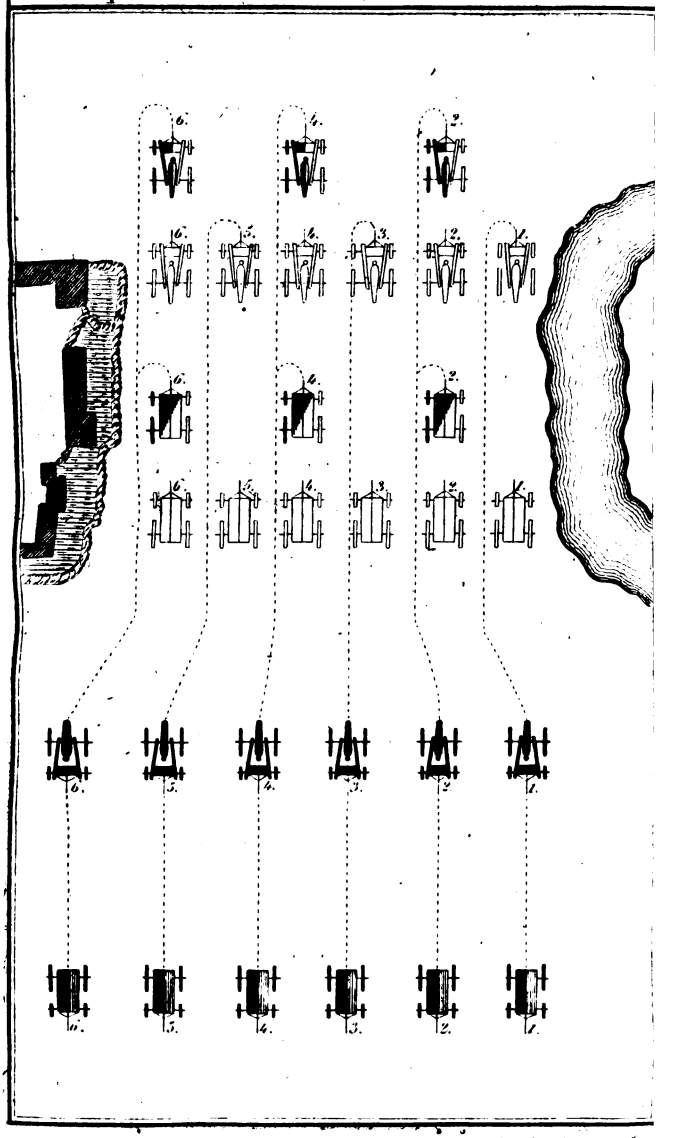

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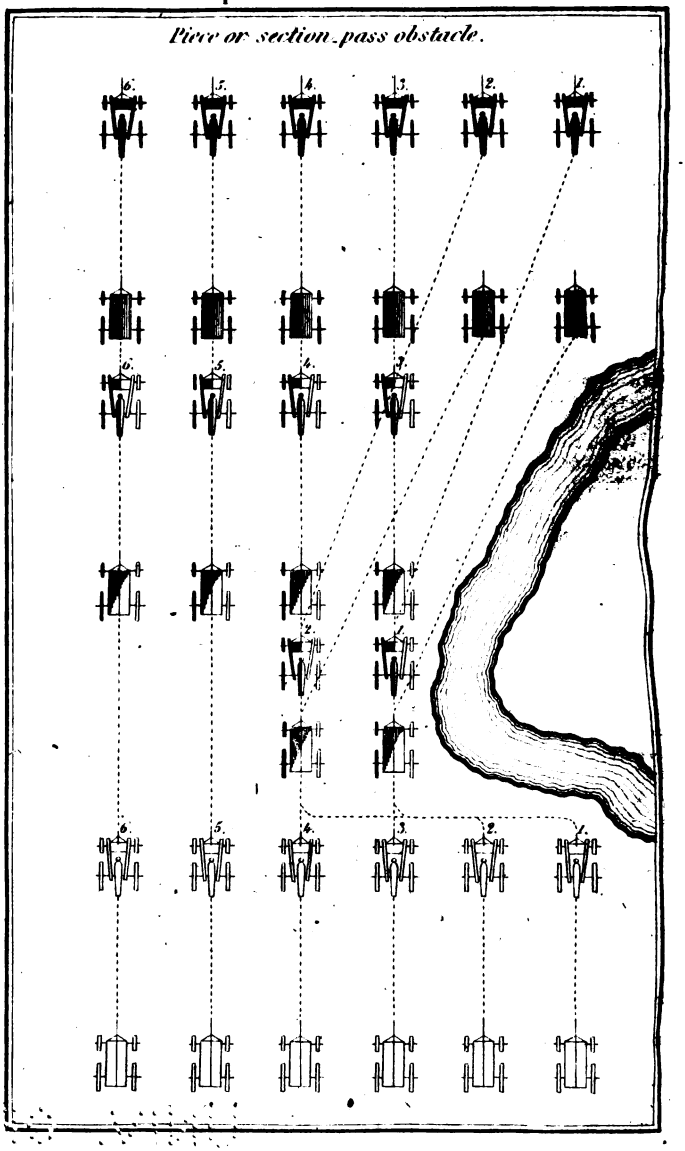

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62 If the battery is marching *in retreat*, the captain commands,

Battery—right (or *left*) *wheel*—MARCH,

at the moment when the line of caissons has arrived at the wheeling point; and the officer of the train, immediately after him, gives the word of execution,

Right (or *left*) *wheel*—MARCH.

The line of pieces wheels at the same place as that of the caissons, at the command of the captain,

Right (or *left*) *wheel*—MARCH.

The captain and the officer of the train successively re-establish their lines in the direct march by the word *Forward*, given a little before the movement is finished, and then MARCH.

---

63. 3d. *To close Intervals.*

The battery being in march, and the ground no longer permitting it to march in line and preserve its intervals, the captain commands,

1. *Attention.* 2. *On ..... piece, to ..... paces—close intervals.* 3. MARCH.

(*Pl.* XL.) At the word MARCH, the pieces oblique towards the one named, to close to the distance ordered, which, except in extraordinary cases, shall not be less than six paces, and they are then successively re-directed to the front by their respective chiefs.

When the ground permits the ordinary intervals to be resumed, the captain commands,

1. *Attention.* 2. *On ..... piece—open intervals.* 3. MARCH.

At the word MARCH, each piece obliques from the one named, to resume its proper interval.

The caissons execute the same movement when they arrive at the same place.

64. If, after having closed the intervals so much that the pieces and caissons cannot wheel-about, the captain wishes to march in the opposite direction; having halted the battery, he commands,

1. *Attention.* 2. *Even pieces and caissons—forward.* 3. MARCH.

(*Pl.* XLI.) At the word MARCH, the pieces and caissons designated move forward, and, when the odd numbers are unmasked, the captain wheels the whole to the left-about, and immediately after the even numbers resume their places in line.

---

65. 4th. *To pass an Obstacle.*

According as the obstacle presents itself before a piece or a section, the captain commands,

..... *piece* (or *section*)—*pass the obstacle.*

(*Pl.* XLII.) If it be a piece, the chief of the section of the piece named commands,

..... *piece—right* (or *left*) *wheel*—MARCH.

At the word MARCH, the piece wheels to the right or left, and moves in rear of the other pieces of its section.

The caisson, when it arrives at the obstacle, executes the same movement at the command of its chief.

If the obstacle present itself before a section, the chief of the named section commands,

..... *pieces—right* (or *left*) *wheel*—MARCH.

This section is placed in rear of the centre section, if it be one of the

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wings, and in rear of the right, if it be the centre section, and, when it has arrived there, its chief orders,

..... *pieces—left* (or *right*) *wheel*—MARCH.

The caissons of the named section execute, at the same place, and at the command of their chief, movements similar to those of their pieces.

Having passed the obstacle, in order to form the line, the captain commands,

..... *piece* (or *section*)—*into line.*

At this command, the chief of the section orders,

..... *piece* (or *section*)—*left* (or *right*) *oblique*—MARCH.

The piece, (or section,) quickening the pace, moves into line. In horse-artillery, it trots.

The passing an obstacle is effected in the same manner marching *in retreat* as marching to the *front*.

---

66. 5th. *To halt, and align the Battery.*

The captain commands,

1. *Attention.* 2. *Battery.* 3. *Halt.* 4. *Right* (or *left*) *dress.*

At the word *Halt*, repeated only by the officer of the train, the pieces and caissons halt.

At the fourth word of command, in like manner repeated by the officer of the train, the captain rectifies the alignment of the battery.

67. If it be desired to give more regularity to the line, the captain moves the first section to the front, about the length of a piece, and, after having aligned the drivers of the wheel-horses in the direction which he *wishes* to give to the battery, he commands,

1. *Attention.* 2. *By sections—right dress.*

Each chief of section gives, in succession, to his section, the command,

..... *section—forward—guide right*—MARCH.

When the section has arrived within four paces of the line, its chief commands,

..... *section—halt. Right dress.*

At this command, the chiefs of sections dress their pieces on those of the first section.

The caissons follow, in succession, the movements of the pieces of their sections, and are aligned by command of the officer of the train.

The captain superintends and rectifies the alignment of the battery.

The alignment is made in the same manner on the third section.

ARTICLE SECOND.

To march by a Flank, in Order to gain Ground to the Right or to the Left, and to change Direction.

The Battery being in Line, halted, or marching.

---

68. *To march by a Flank.*

The captain commands,

1. *Attention.* 2. *Pieces and caissons—right* (or *left*) *wheel.* 3. MARCH. 4. FORWARD.

(*Pl.* XLIII.) At the second command, the officer of the train orders,

Caissons—right (or *left*) *wheel*

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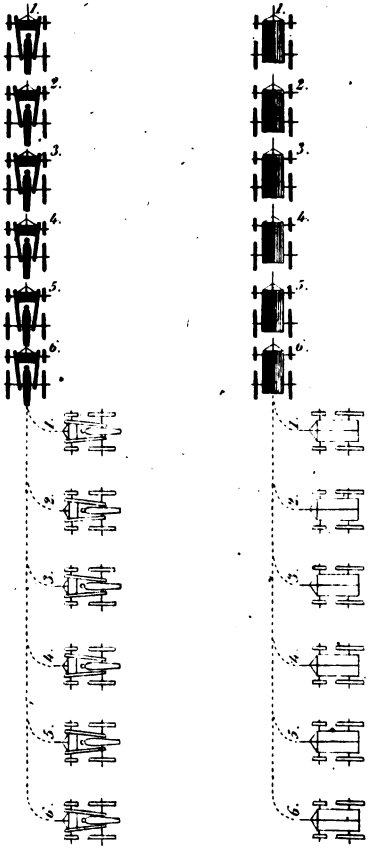
1. Attention.
2. Pieces & caissons right wheel.
3. March.
4. Forward.



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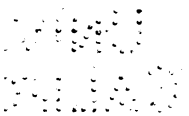

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At the word MARCH, repeated by the officer of the train, each piece and caisson wheels to the right (or left) on a fixed pivot.*

At the fourth command, also repeated by the officer of the train, the pieces close, as much as possible, on one another.

The caissons follow in a parallel direction; the leading horses of each march abreast the limber of its piece.

The chiefs of sections and of caissons march on the flank of the column, except those of the first (or third) section, who march at the head of it.

The chief of the first (or sixth) piece places himself in front of the leading horses of his piece.

This movement is executed in the same manner, in column of pieces, sections, or half-batteries.

---

69. *To change Direction, marching by a Flank.*

The captain commands,

Head of column—right (or *left*) *wheel.*

The chief of the section which is at the head then commands,

Right (or *left*) *wheel*—MARCH;

and afterwards, when the wheel is nearly completed,

Forward—MARCH.

After having gained sufficient ground to the right or to the left, in order to resume the line, the captain gives the commands,

1. *Attention.* 2. *Pieces and caissons—left* (or *right*) *wheel.* 3. MARCH.

ARTICLE THIRD.

70. *Passing a Defile, in Advancing or in Retreat.*

To pass a defile to the front, the battery, being halted or marching, is broken off by one of its flanks, or by the centre section, according to the position of the defile. If, after having broken on the centre section, the defile narrows so as to admit only one carriage, the column is again broken in succession into column of pieces, at a caution from the captain, in such a manner that the pieces of the same section shall not be separated, so that they will be arranged in the following order:—3, 4, 2, 1, 5, 6. As soon as the ground will permit, the primitive order of double column must be resumed. For this purpose, the chief of the second section commands,

Fourth piece—into line—MARCH,

and the section is formed.

The captain immediately commands,

Guide right.

The chief of the third section then commands,

Pieces—left oblique—MARCH;

and afterwards,

Forward—MARCH.

71. The passage of a defile *in retreat*, when it is not necessary to cover the retreat by a position of the battery, is effected, like that to the front, by the flank which is opposite the defile. But, if the passage be made under the fire of an enemy, the opposite wing must be broken off, while the rest of the battery continues firing.

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* In horse-artillery, the squads wheel to the right, (or left,) march on a line with the muzzles of their pieces, and form a third column between that of the pieces and that of the caissons.

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72. In either case, if the defile be opposite the centre of the battery, the flanks are broken off in this manner:—

The captain commands,

1. *Attention.* 2. *By pieces—from flanks in rear of centre—pass the defile.* 3. MARCH.

(*Pl.* XLIV.) At the second command, the chief of the first section orders,

First piece—in retreat—into column;

the chief of the third section,

Sixth piece—in retreat—into column.

At the word MARCH, repeated by the same chiefs, the pieces of these sections, in succession, form column in retreat. The first and sixth caissons are directed toward the defile, and pass it together. When the first and sixth pieces have reached the opening of the defile, the chief of the first section causes the first piece to wheel to the left, and the chief of the third section causes the sixth piece to wheel to the right, and they immediately arrange the pieces of their sections *in battery* in rear of their first position, where they can at once commence firing, if it be necessary.

During this time, the caissons continue to march under the guidance of their chiefs. When those at the head of the column have passed the defile about the length of a piece, the chief of the caissons of the first section causes the first caisson to wheel to the left, and the chief of the caissons of the third section causes the sixth caisson to wheel to the right. They are then arranged, each caisson in rear of its piece.

When the captain thinks it proper, he commands,

Second section—in retreat—MARCH.

At this command, repeated by the chief of the second section, this section moves off, and takes position on a line with the first and third.

73. If the defile becomes too narrow to admit two carriages abreast, the double column is broken, in succession, in such a manner that the pieces of the same section shall not be separated: they will then be *formed in* the following order:—1, 2, 6, 5, 3, 4.

If the captain perceives, at the entrance of the defile, that it will admit only one carriage in front, he will break off by pieces in the above order.

Being thus arranged by pieces, he will re-form in battery, on the other side of the defile, as before directed.

ARTICLE FOURTH.

74. *Being in Line, halted or marching, to form in Battery.*

In foot-artillery, the battery being either halted or marching, the captain commands,

1. *Attention.* 2. *Into battery.* 3. MARCH.

At the word MARCH, repeated by the chiefs of sections, the pieces and caissons halt, if they are marching; the pieces wheel to the left-about, and are aligned by their chiefs of sections, and always towards that side on which the piece, which serves as guide, is placed. The caissons are aligned in like manner.

In horse-artillery, the battery being on a march, the captain commands,

1. *Attention.* 2. *Front into battery.* 3. MARCH.

At the second command, the squads halt and dismount by command of their chiefs of squads. At the word MARCH, repeated by the chiefs of sections, when the pieces have advanced to the front about the length of a piece, the pieces wheel to the left-about, halt, and are immediately aligned by the chiefs of sections.

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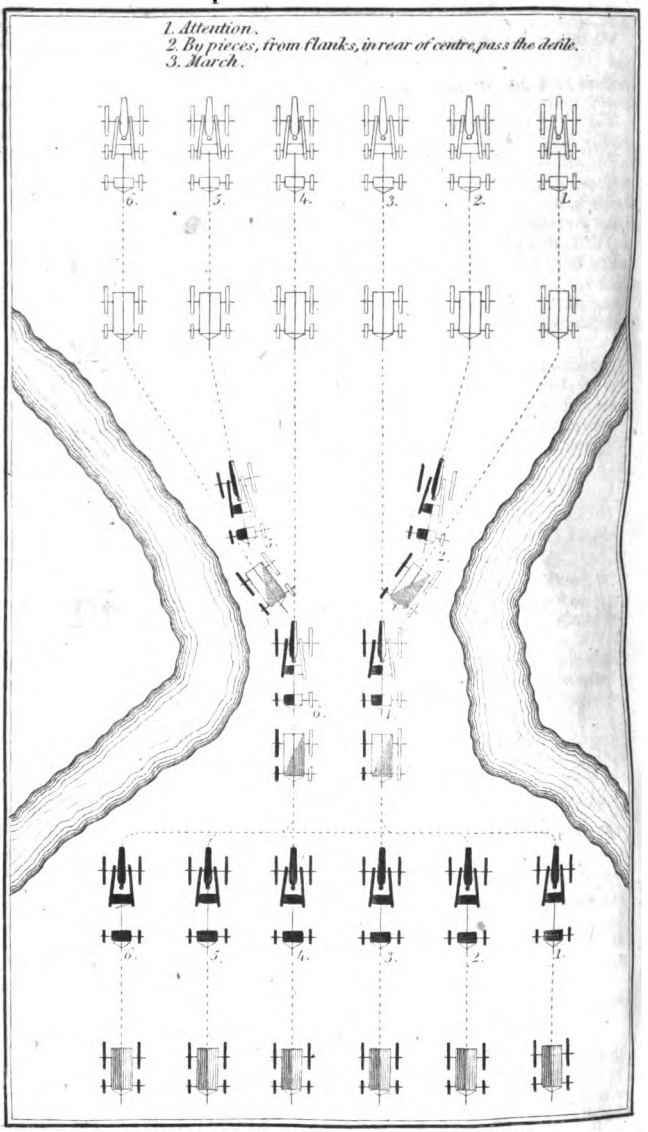

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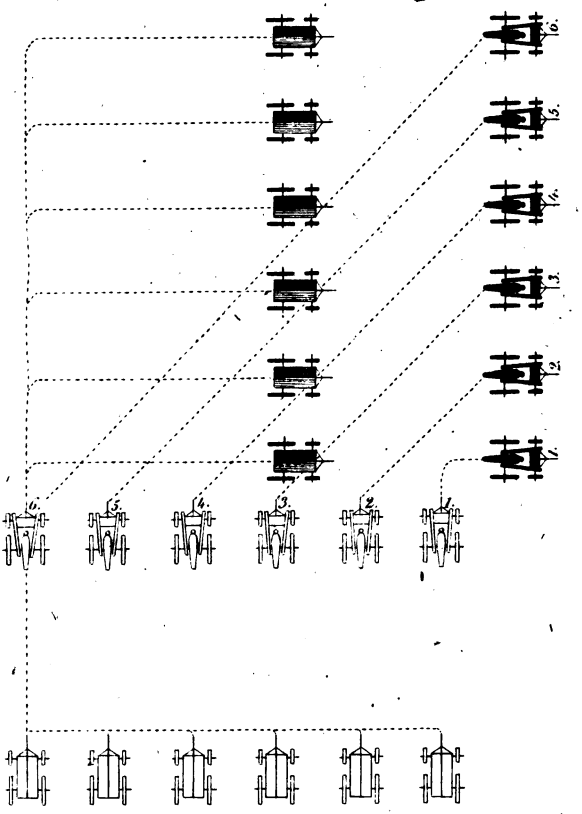
To change front to the right on the 1st section. *Pl. XLV.*

1. Attention.
2. Change front forward on 1st section.
3. March.



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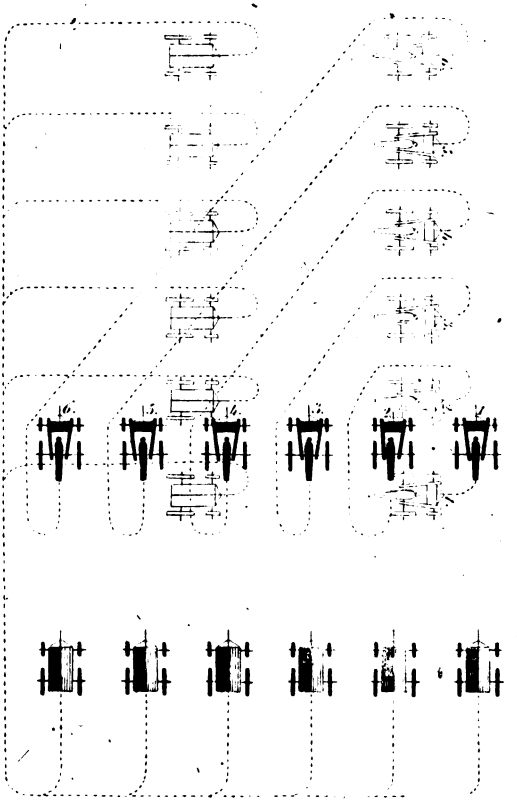
1. Attention.
2. Change front to the rear on 1st section.
3. March.



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The caissons halt, and are aligned as in foot-artillery.

If the battery is halted, horse-artillery execute the movement like the foot-artillery, the squads taking their places in battery by two successive left-about wheels.

Being in battery, the formation in line is resumed by wheeling the pieces to the left-about.

ARTICLE FIFTH.

Changes of Front, in Line or in Battery.

FIRST CASE. *Being in Line at a Halt, to change Front.*

1st. On first Section, to face to the Right; or on third Section, to face to the Left.
2d. On first Section, to face to the Left; or on third Section, to face to the Right.
3d. On second Section, to face either to the Left or Right.

75. 1st. *To change Front to the Right on first Section.*

The captain commands,

1. *Attention.* 2. *Change front forward on first section.* 3. MARCH.

(*Pl.* XLV.) At the second command, the chief of the first section orders,

First section—right wheel;

the other chiefs of sections,

Pieces—right oblique;

the officer of the train,

Caissons—left wheel.

At the word MARCH, repeated by the same chiefs, the first section wheels to the right on a fixed pivot, and is immediately established by its chief, so as to form the base of the new alignment.

The other pieces arrive in succession on the line, and are dressed by their chiefs of sections on the first section.

The caissons, except the sixth, wheel to the left. The sixth moves to the front, and all the others wheel to the right, in succession, as they arrive on the ground which the sixth occupied. It is necessary to preserve the distance of twelve paces between them. Each having arrived opposite its piece, the officer of the train commands,

Caissons—right wheel—MARCH. *Forward—guide right. Halt. Right dress.*

The change of front to the left on the third section is executed in the same manner, substituting, in the words of command, *left* for *right*, and reciprocally.

76. 2d. *To change Front to the Left on the first Section.*

The captain commands,

1. *Attention.* 2. *Change front to the rear on first section.* 3. MARCH.

(*Pl.* XLVI.) At the second command, the chief of the first section orders,

First section—left wheel;

the chiefs of the other sections,

Pieces—left-about wheel;

the officer of the train,

Caissons—left-about wheel.

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At the word MARCH, repeated by the same chiefs, the first section wheels to the left on a fixed pivot, and is immediately established by its chief on the new alignment. As soon as the pieces have completed their wheeling-about, the chiefs of the second and third sections command,

Pieces—left oblique—MARCH;

the officer of the train,

Forward—guide left.

The pieces, obliquing, move to the rear of the new line, passing it a few paces, and then, wheeling to the left-about, they are established on the alignment of the first section by commands from their chiefs of sections.

When the line of caissons has moved far enough to the rear to unmask the new line, (about twice the length of a piece,) the officer of the train commands,

Caissons—left wheel—MARCH;

and, when the head of the column has marched the length of a piece,

Head of column—left wheel;

afterwards, when each caisson is opposite its piece,

Caissons—left wheel—MARCH. *Halt. Right dress.*

The change of front to the right on the third section is executed in the same manner.

---

77. 3d. *To change Front to the Left on the second Section.*

The captain commands,

1. *Attention.* 2. *Change front on second section—right wing forward.* 3. MARCH.

(*Pl.* XLVII.) At the second command, the chief of the second section orders,

Second section—left wheel;

the chief of the first section,

Pieces—left oblique;

the chief of the third section,

Pieces—left-about wheel.

The officer of the train commands,

Caissons—right wheel.

At the word MARCH, repeated by the same chiefs, the second section wheels to the left on a fixed pivot, and is immediately established by its chief on the new alignment. The first section arranges itself on the line of the second. As soon as the wheeling-about is completed, the chief of the third section commands,

Pieces—left oblique—MARCH.

The pieces of this section move obliquely to the rear of the new line, and, passing it about the length of a piece, wheel to the left-about, and are then established on the line of the second section by command of their chief of section.

The caissons, except the first, wheel to the right. The first moves forward, and all the rest, in succession, wheel to the left as they arrive on the ground which the first occupied. Each caisson having arrived opposite its piece, the officer of the train commands,

Caissons—left wheel—MARCH. *Halt. Right dress.*

To change front to the right on the second section, is executed by similar means and words of command.

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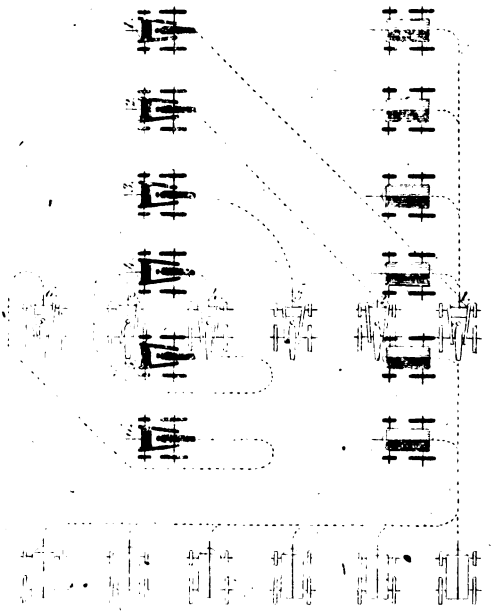
1. Attention.
2. Change front on 2d section right wing forward.
3. March.



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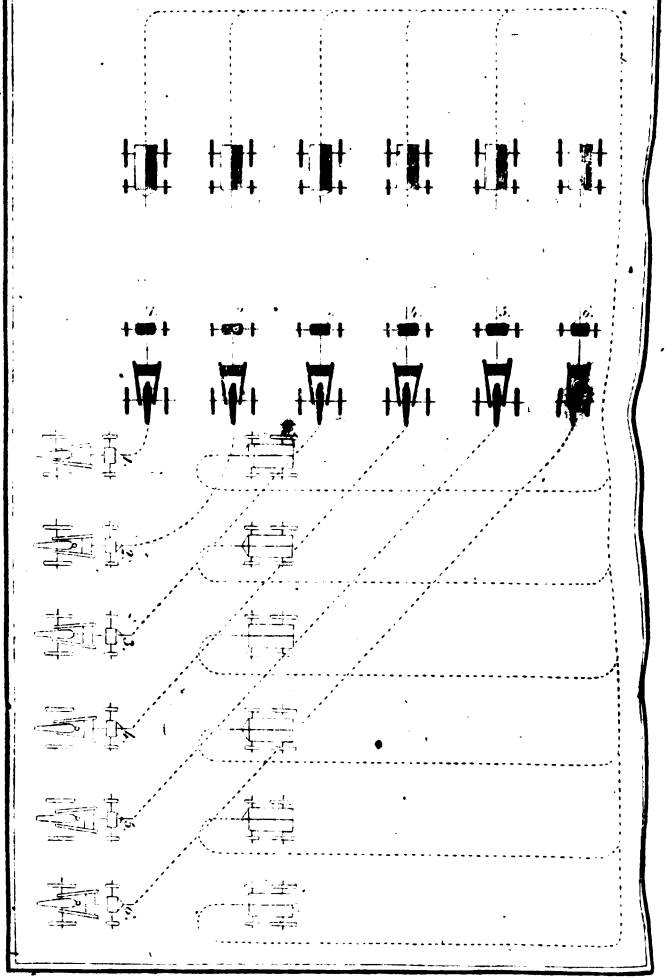
1. Attention.
2. Change front on 1st section to fire to the left.
3. March.



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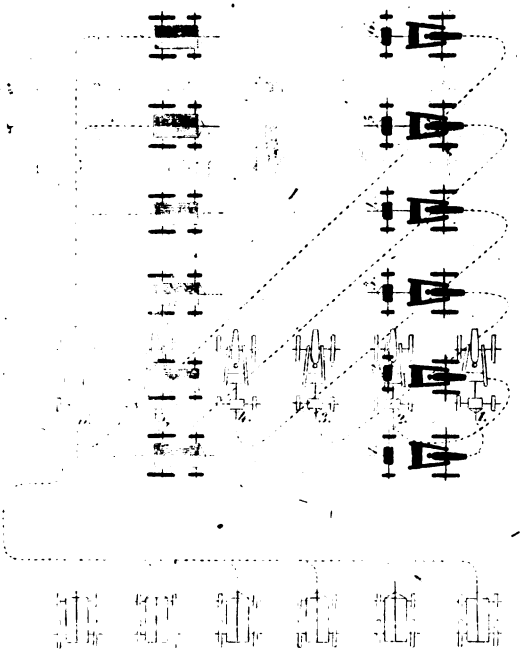
1. *Attention.*
2. *Change front on 1st section to fire to the right.*
3. *March.*



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SECOND CASE. *Being in Battery, to execute the different Changes of Front.*

1st. On the first Section, to fire to the Left; or on the third Section, to fire to the Right.

2d. On the first Section, to fire to the Right; or on the third Section, to fire to the Left.

3d. On the second Section, to fire either to the Right or Left.

It may readily be perceived, that these three changes of front resolve themselves, very nearly, into those above explained. It is therefore deemed sufficient, without entering into the details of execution, to point out the words of command which are to be given.

---

78. 1st. *Change of Front on first Section, to fire to the Left.*

The captain commands,

1. *Attention.* 2. *Change front on first section, to fire to the left.* 3. MARCH.

(*Pl.* XLVIII.) At the second command, the chief of the first section orders,

First section—left wheel;

the chiefs of the other sections,

*Pieces—left oblique;**

the officer of the train,

Caissons—left-about wheel.† *Forward—guide left.*

At the word MARCH, repeated by the same chiefs, the pieces and caissons move together; and, when the line of caissons has marched twice the length of a piece, the officer of the train commands,

Caissons—left wheel—MARCH; afterwards, *Head of column—left wheel;* and, when the caissons have arrived opposite their pieces, he orders,

Caissons—left wheel—MARCH. *Halt. Right dress.*

---

79. 2d. *Change of Front on first Section, to fire to the Right.*

The captain commands,

1. *Attention.* 2. *Change front on first section, to fire to the right.* 3. MARCH.

(*Pl.* XLIX.) At the second command, the chief of the first section orders,

First section—right wheel;

the other chiefs of sections,

Pieces—left-about wheel;

the officers of the train,

Caissons—left wheel.

At the word MARCH, repeated by the same chiefs, the pieces and caissons execute the movement.

The chiefs of the second and third sections command,

Pieces—right oblique—MARCH.

The pieces of these sections are arranged, in succession, in battery, on

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* In horse-artillery, the squads, who are to move to the rear, wheel-about towards the section on which the change of front is made, and, with their guides on that flank, move to their stations in the new line, where they again wheel-about in the same manner.

† This command is omitted when the formation is in the order in *retreat*.

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the alignment of the first section, by passing the line, and wheeling to the left-about.

As soon as the caissons have wheeled to the left, the officer of the train orders,

Head of column—right wheel, (twice in succession;)

and, when the head of the column is the length of a piece from the leading horses of the pieces,

Head of column—left wheel.

When each caisson has arrived opposite its piece, he commands,

Caissons—right wheel—MARCH. *Halt. Right dress.*

---

80. 3d. *Change of Front on the second Section, to fire to the Right.*

(*Pl.* L.) The captain commands,

1. *Attention.* 2. *Change front on second section, to fire to the right.* 3. MARCH.

At the second command, the chief of the second section orders,

Second section—right wheel;

the chief of the first section,

Pieces—right oblique;

the chief of the third section,

Pieces—left-about wheel;

the officer of the train,

Caissons—left wheel.

At the word MARCH, repeated by the same chiefs, the pieces and caissons execute the movement.

The first section places itself on the line of the second.

The chief of the third section commands,

Pieces—right oblique—MARCH;

and the pieces of this section are successively brought into battery.

As soon as the caissons have wheeled to the left, the officer of the train commands,

Head of column—right wheel;

and, when each caisson has arrived opposite its piece,

Caissons—right wheel—MARCH. *Halt. Right dress.*

The change of front on the second section, to fire to the left, is executed in the same manner.

ARTICLE SIXTH.

THE COUNTERMARCH.

81. *The Battery being in Line, halted, to face in the opposite Direction, by executing the Countermarch.*

The captain commands,

1. *Attention.* 2. *Countermarch.* 3. *Pieces—left wheel; Caissons—right wheel.* 4. MARCH.

(*Pl.* LI.) At the word MARCH, repeated by the officer of the train only, each piece wheels to the left, and each caisson wheels to the right. This movement being completed, the head of the column of pieces, conducted by the chief of the third section, moves forward about the length

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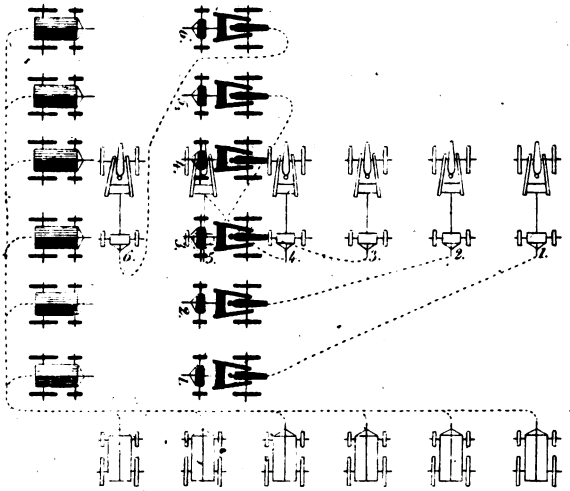
To change front on the centre section to fire to the right. *Pl. L.*

1. Attention.
2. Change front on 2.d section, to fire to the right.
3. March.



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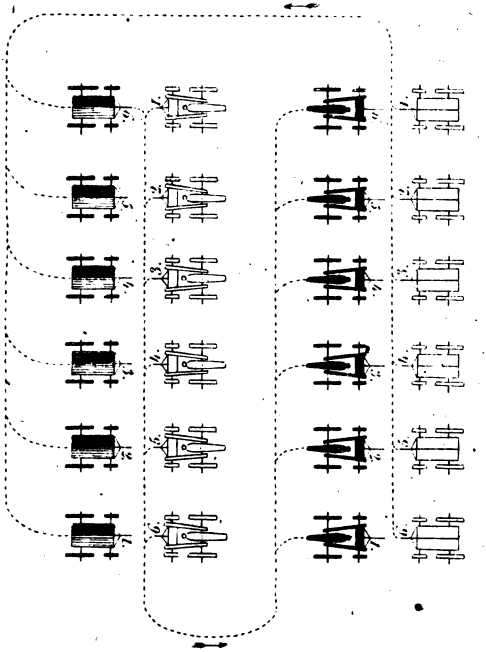
1. *Attention.*
2. *Countermarch.*
3. *Pieces left* ..... } *Wheel.*
   Caissons right }
4. *March.*



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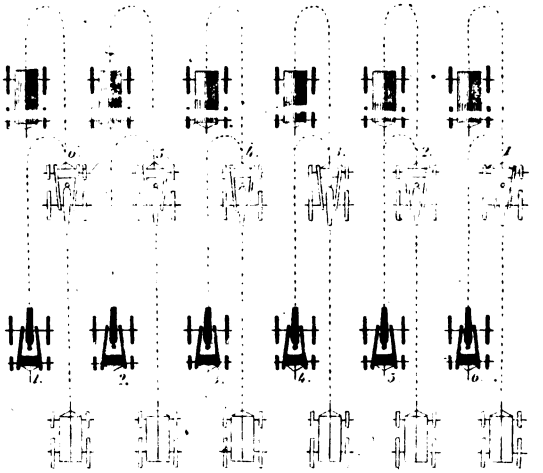
Countermarch by inversion. Pl. LII.

1. Attention.
2. By inversion, countermarch
3. Pieces left about wheel.
4. March



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of a piece, and then wheels twice to the left, so as to enter near the middle of the distance between the pieces and caissons.

The caissons quicken the pace. Their head of column, conducted by the chief of caissons of the third section, moves forward the length of a piece, and then wheels to the left. After having passed the length of a piece beyond the position of the original line, the head of column again wheels to the left, and marches parallel to this line, until each caisson is opposite its piece.

The captain then commands,

Pieces—right wheel; Caissons—left wheel—MARCH.
Halt. Left dress.

In horse-artillery, the squads wheel to the left at the same time as their pieces, marching opposite the muzzles of their pieces, and they occupy their position in the new line, by wheeling by squads to the right, at the same time as their pieces.

The countermarch in column is executed in like manner. In either case, whether the right or left be in front, the movement is always made by pieces to the left and by caissons to the right, in order that the heads of column may constantly wheel to the left. If it be desirable to give more regularity to this manœuvre, the captain places one of the guides at the position where the head of the column of pieces ought to rest; that is to say, in a line with or near the driver of the wheel-horses of the first caisson.

82. This manœuvre, regular and indispensable when acting with other troops, may, in case of emergency, be advantageously replaced by another, more prompt and more easy, but less regular.

For this purpose, the captain commands,

1. *Attention.* 2. *By inversion—countermarch.* 3. *Pieces—left-about wheel.* 4. MARCH.

(*Pl.* LII.) At the third command, the officer of the train orders,

Caissons—forward—guide right.

At the word MARCH, repeated by the officer of the train only, the line of pieces is wheeled left-about, and, at the command of the captain,

Forward—guide right,

the pieces move to the places which are occupied by their respective caissons. The caissons move forward, cutting the line which the pieces had occupied; they then wheel left-about, and each of them takes the place of its piece.

PART V.

BEING IN BATTERY, TO EXECUTE THE DIFFERENT FIRINGS.

83. 1st. *Being in Battery, to fire.*

The captain commands,

Commence—FIRING.

If the battery be marching *in line, in retreat*, it is already formed to fire in the direction opposite to its line of march. To execute the fire in retreat, the captain halts the battery, and commences firing as above. The different chiefs move as rapidly as possible to their positions in battery. In horse-artillery, for firing in retreat, the gunners and matrosses dismount, without the squads wheeling to the left-about. The captain causes the fire to cease by a ruffle of the drum.

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84. 2d. *To fire advancing by Half-Battery.*

The captain commands,

1. *Attention.* 2. *Fire advancing by half-battery.* 3. ..... *half-battery*—COMMENCE THE MOVEMENT.

(*Pl.* LIII.) At the third command, the chief of the named half-battery causes its fire to cease, moves his half-battery to the front about twice the length of a piece, halts it, forms in battery, and commences firing.

When the chief of the other half-battery sees that the one which has moved to the front has commenced firing, he causes his to cease firing, and executes, with his half-battery, a similar movement to the front; and so on. During this time, the half-battery which continues firing must take care to fire obliquely, so as not to incommode the half-battery which is moving to the front.

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85. 3d. *To fire in Retreat by Half-Battery.*

The captain commands,

1. *Attention;* 2. *Fire in retreat by half-battery;* 3. ..... *half-battery*—COMMENCE THE MOVEMENT;

and the movement is executed in the same manner as in the preceding case.

To execute this fire while the battery is marching in retreat, the third command will be,

..... *half-battery—commence*—FIRING;

and the chief of the named half-battery halts it, and commences the fire. The movement then continues as has been directed.

After firing by half-battery, either advancing or in retreat, to form battery, the captain causes the fire to cease, and commands,

1. *Attention.* 2. *On* ..... *half-battery*—DRESS.

At this command, the battery is aligned on the named half-battery.

---

86. 4th. *Fire to a Flank.*

Being in battery, to fire to a flank, the captain commands,

1. *Attention.* 2. *Fire to the right flank.* 3. MARCH.

(*Pl.* LIV.) At the second command, the chief of the third section orders,

Fifth piece—in retreat;

the other chiefs of sections,

..... *section—in retreat;*

the officer of the train,

Caissons—left-about wheel—in retreat—guide right.

The chief of the caissons of the third section cautions the sixth caisson to stand fast, after wheeling left-about.

At the third command, the chiefs of sections and the officer of the train command,

MARCH.

The pieces and caissons named march *in retreat.*

The chief of the sixth piece backs the limber; the gunners turn the trail to the left, and then move the piece forward, until the ends of the pointing-handspikes are even with the ammunition-chest. This piece, being unmasked, commences firing.

The fifth piece marches in retreat, until its muzzle is on a line with the

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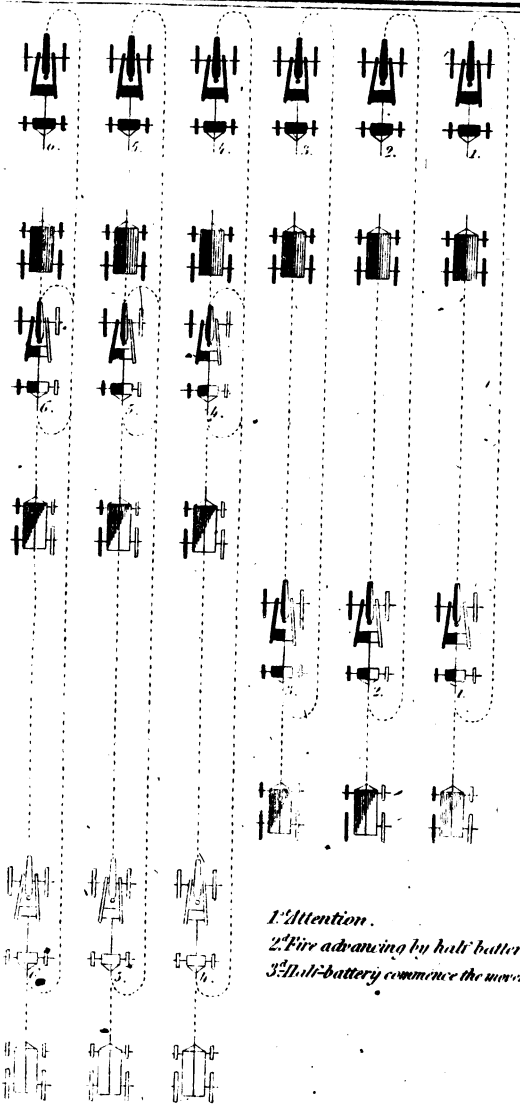

1.st Attention.
2.d Fire advancing by half batteries.
3.d Half-battery commence the movement.

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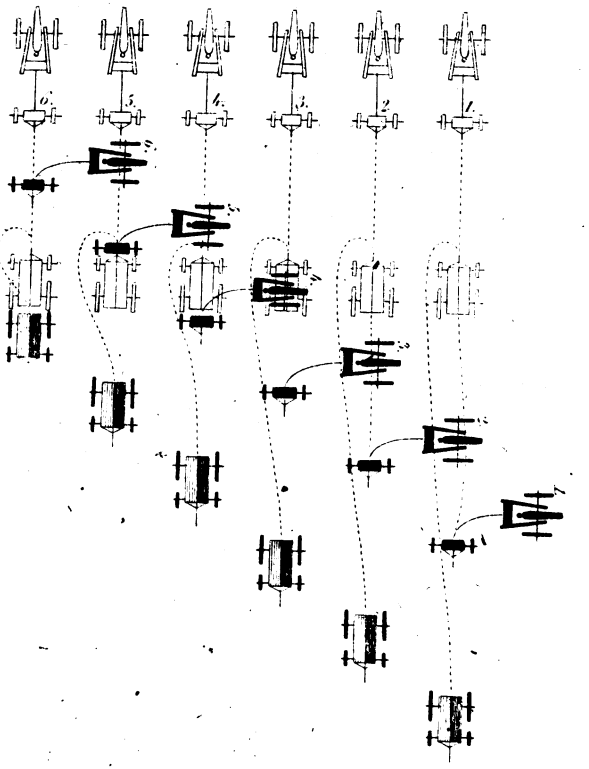
1. Attention.
2. Fire to the right flank.
3. March.



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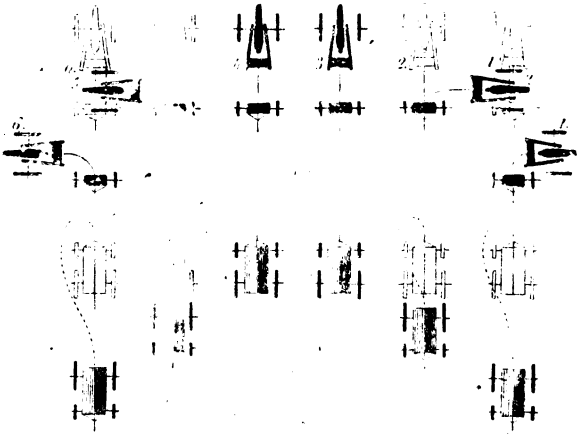
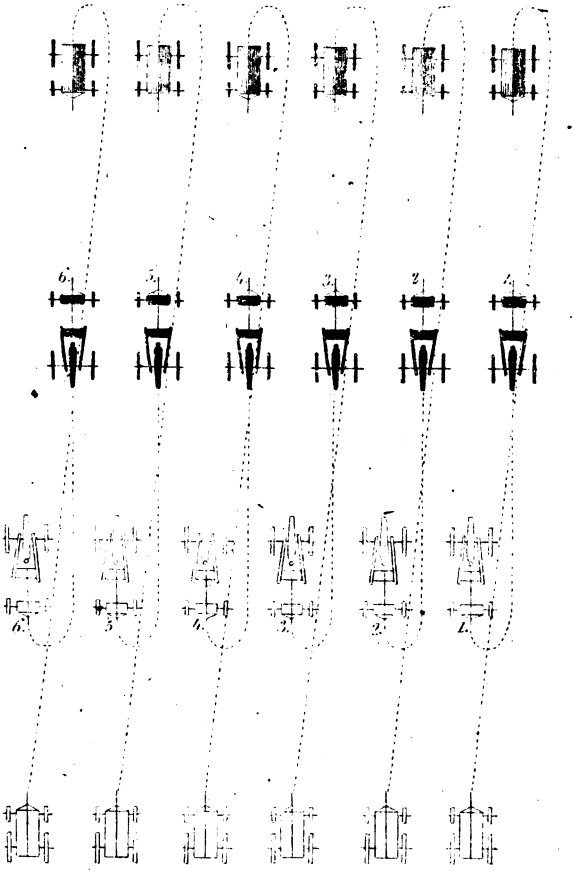
1. ...tention.
2. Fire to the right & left.
3. March.



1. Attention.
2. By inversion, fire to the rear.
3. March.



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leading horses of the sixth, and, like that, it commences firing to the right flank.

The other pieces are arranged in the same manner, in respect to that which precedes them on the left.

The caissons march *in retreat* the same distance as their respective pieces.

87. In the same manner is executed the fire to the left flank; the fire to a flank by any portion of the battery; or, in fine, part to the right and part to the left. For this last, the captain commands,

1. *Attention.* 2. *Fire to the right and left.* 3. MARCH.

(*Pl.* LV.) The third piece trails to the left, and the fourth to the right; and the first and third sections move *in retreat*, as directed above.

If the captain wishes the centre section to continue firing to the front, he cautions the chief of it, and then this section stands fast.

88. After having caused the fire to cease, to form battery, the captain commands,

1. *Attention.* 2. *On ..... piece*—DRESS.

At this command, the pieces move up to the line of the one which is named, and the caissons are aligned among themselves.

89. 5th. *Fire to the Rear.*

Being in battery, to execute this fire, the captain commands,

1. *Attention.* 2. *By inversion—fire to the rear.* 3. MARCH.

(*Pl.* LVI.) At the second command, the chiefs of sections order,

Pieces—left-about wheel.

At the word MARCH, the pieces wheel to the left-about; and, as soon as the movement is completed, the officer of the train commands,

Caissons—forward—trot—MARCH;

and the caissons take their places in battery as in retreat.

To execute this fire when the battery is in line, the captain gives the same words of command as above; and the officer of the train, at the second command, orders,

Caissons—pass your pieces—trot;

and, at the word MARCH, the caissons take their places in battery.

END OF THE SCHOOL OF THE BATTERY.

EVOLUTIONS OF BATTERIES.

General Principles.

THE School of the Battery having established the principles, and explained the mode of execution, of all the movements which a single battery can make, in every possible case, it remains to apply these principles to a line of several batteries.

We here suppose a line of four batteries; but the rules, which will be prescribed, equally apply to any number of batteries whatsoever. Each will be designated by its number, according to the rank which it occupies in the line. The battery on the right will be denominated the *first;* the next, the *second;* and so on to the left.

Two batteries will constitute a division. The divisions will be designa-

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ted by their numbers, according to their rank, from right to left. The pieces and sections of each battery will always preserve their numbers, and will, moreover, be designated by that of their battery.

The line of batteries, and the divisions, will be commanded by field-officers.

The commandants of divisions will superintend, both *in line* and *in column*, the execution of all the commands. They may, consequently, move wherever they judge their presence necessary, within the extent of their respective divisions.

An adjutant will always be attached to the commandant in chief, and be charged with the establishment of the guides, and the general direction.

According to the number of unassigned officers, the commandant in chief may attach one to each commandant of division, as acting adjutant, and may retain several about his own person.

FORMATION OF BATTERIES.

1*st.* IN LINE. 2*d.* IN COLUMN. 3*d.* FOR PARADE.

1st. Formation of Batteries in Line.

In *line*, or *in battery*, the interval between the batteries will be twice the length of a piece.

The commandant in chief will have no fixed position, but may move wherever he judges his presence necessary.

In *line*, the commandants of division will place themselves in front of the centre of their respective divisions, three paces in advance of the line of chiefs of batteries. In *battery*, they will likewise be in the centre, but on a line with the chiefs of battery.

The adjutants and supernumerary officers will be near the commandant in chief.

The acting adjutants attached to the commandants of division will be in their rear, and on the line of the chiefs of section.

2d. Formation of Batteries in Column.

In column of sections, half-batteries or batteries, the distance between the pieces will be the length of a piece.

In column of batteries, there should be the length of a piece between the line of pieces and that of caissons, of each battery.

The commandant in chief will be habitually at the head of the column, in order to direct it. In the evolutions, he may move wherever he can best direct the general movement.

The commandants of division will be on the flank on which the direction is taken, twelve paces from it, and abreast of the centre of their respective divisions.

The adjutant and supernumerary officers will be near the commandant in chief; the acting adjutants attached to commandants of division will be near them.

3d. Parades and Reviews.

The batteries will be in line.

The commandant in chief will be placed in the centre of the line, three paces in advance of the commandants of division, who will be at their places in line;

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Supernumerary field-officers, (if there be any,) on the right and left of the commandant in chief, and a little in his rear;

The adjutant, in rear of the commandant in chief, and on the line of the chiefs of batteries; the other supernumerary officers, on the same rank, and on the left of the adjutant;

The acting adjutants attached to the commandants of division, in their rear, on the line of the chiefs of section.

To pass in Review.

In marching past, either by sections, half-batteries, or batteries, the commandant in chief marches at the head of the column, twelve paces in advance of the chief of the first battery;

Supernumerary field-officers, on the right and left of the commandant in chief, and a little in his rear;

Commandants of division, on the side towards the guide of the chief of their first battery, and a little in advance of him;

The adjutant, two paces in rear of the commandant in chief;

The supernumerary officers, in the same rank, and on the left of the adjutant;

The acting adjutants attached to the commandants of division, in their rear, on the left, and on a line with the chief of the first section, if marching past by sections or by half-batteries; and on the left of the chief of the second section, if it be by batteries.

In reviews with other troops, the batteries will be aligned in such manner as to have the heads of the leading horses on the line. To effect this, the drivers of the leaders dress on the rear rank of infantry, or on the front rank of cavalry. In the first case, the commandants of division, the chiefs of batteries and of sections, retire to the line of the leading horses; in the second case, they remain at their places in line.

In the manœuvres, the chiefs of pieces dress on the front rank of the troops, and the officers are at their places in line. For the formations *in line* and *in battery*, the drivers of the wheel horses of the pieces dress on the file-closers of infantry, or on the front rank of cavalry. In all cases, the interval between the artillery and other troops shall be at least fifty-four paces.

RULES FOR THE WORDS OF COMMAND.

The commandant in chief will give the general words of command, which relate to the movement he may wish to have executed.

The commandants of divisions will always repeat these commands.

The word *Attention* will be repeated by the chiefs of battery, who give the words which relate to their batteries immediately after the general commands, and, without regarding each other, execute the preparatory movements, which ought, in their batteries, to precede the execution of the general movement.

In case a chief of battery, not having understood the general words of command, sees an adjoining battery execute a movement, he will immediately execute the same.

The commandant in chief and the chiefs of batteries will each have a trumpeter or bugler near him in all the movements.

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PART I.

DIFFERENT METHODS OF PASSING FROM LINE INTO COLUMN.

ARTICLE FIRST.

Being in Line, to break into Column of Sections or Half-Batteries.

1. FIRST CASE. *By one of the Flanks of the Line.*

(As in School of the Battery, Nos. 5, 7, 13.)

2. SECOND CASE. *By one of the Flanks of each Division, Advancing or in Retreat.*

The commandant in chief commands,

1. *Attention.* 2. *On first section* (or *half-battery*) *of divisions—front into column.* 3. MARCH.

The chiefs of the first and third batteries command,

On first section (or *half-battery*)*—front into column;*

the chiefs of the second and fourth batteries,

By sections (or *half-batteries*)*—front into column.*

In order to break *in retreat*, by sections or half-batteries, from the left of each division, (for example,) the second and fourth batteries break in retreat, and the first and third arrange themselves in column in rear of them.

3. THIRD CASE. *By one of the Flanks of each Battery, Advancing or in Retreat.*

The commandant in chief commands,

1. *Attention.* 2. *On first section* (or *half-battery*) *of batteries—front into column.* 3. MARCH.

Each chief of battery causes his battery to break to the front into column, as has been explained in the School of the Battery, Nos. 5 and 10.

To break into column in retreat, is executed in the same manner.

4. FOURTH CASE. *By Sections or Half-Batteries, from the Centre of the Line, Advancing or in Retreat, (for example, by Half-Batteries.)*

The commandant in chief commands,

1. *Attention.* 2. *By half-batteries from the centre—front into column.* 3. MARCH.

At the second command, the chief of the second battery orders,

On left half-battery—front into column;

the chief of the third battery,

On right half-battery—front into column;

the chief of the first battery,

By half-batteries—left into column;

the chief of the fourth battery,

By half-batteries—right into column.

All repeat the command MARCH.

To break by sections from the centre, and in retreat, is performed in a similar manner.

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ARTICLE SECOND.

5. *Being in Line, to form Column on any given Battery, (for example, the second.)*

The commandant in chief commands,

1. *Attention.* 2. *Column of batteries—on second battery—right in front.* 3. MARCH.

At the second command, the line of caissons closes at a trot to the length of a piece from the line of pieces.

The chief of the first battery commands,

Pieces and caissons—left wheel.

The chief of the second battery cautions it to stand fast.

The chiefs of the third and fourth batteries command,

Pieces and caissons—right wheel.

At the word MARCH, repeated by the chiefs of batteries, they each execute the movement ordered, and, when it is completed, these chiefs command,

FORWARD.

The chief of the first battery, placed by the side of his sixth piece, directs his battery to the front, so as to enter the column, closing near to the second battery, and following a line parallel to it. The line of caissons marches parallel to that of the pieces. The sixth piece of the first battery having arrived nearly abreast the sixth piece of the second battery, the chief of the first commands,

Pieces and caissons—right wheel—MARCH. *Halt. Left dress.*

The chief of the third battery, placed by the side of his first piece, directs it to the rear, and enters the column in the same manner as has been explained for the first battery. The chief of this battery halts in his own person, at the point on which his sixth piece ought to rest, and then commands,

Pieces and caissons—left wheel—MARCH. *Halt. Left dress.*

The fourth battery governs itself by the third, as that is governed by the second.

The movement is similar, if the column be formed on any other battery, right or left in front.

If the formation be *in battery*, the commandant in chief previously executes a wheel-about with the pieces and caissons, and the manœuvre resolves itself into the case above stated.

PART II.

TO MARCH IN COLUMN, CHANGE DIRECTION, AND HALT THE COLUMN; TO FORM THE BATTERIES, AND BREAK THEM.

ARTICLE FIRST.

To march in Column, and change Direction.

6. 1st. The principles of the march of the column of batteries are the same for each as those prescribed in the School of the Battery, No. 59, for the march in line.

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7. 2d. *To change Direction to the Left (for example.)*

The commandant in chief commands,

Head of column—left wheel.

At this command, which shall not be repeated, the chief of the first battery causes it to change direction to the left, conforming to the principles detailed in the School of the Battery, No. 61.

The other batteries change their direction in succession, at the same point as the first.

The change of direction to the right is effected on the same principles.

8. If it be desirable to change the direction of the whole column by a simultaneous movement, the commandant in chief commands,

Change direction; Pieces and caissons—right (or *left*) *wheel*,

and the movement is executed in each battery by the command of its chief, and in such manner as to establish it in the new direction.

In case a part of the column has already changed its direction, (for example, the two first batteries,) and it is wished immediately to establish the two last batteries in the new direction, the commandant in chief commands,

Third and fourth batteries—change direction; Pieces and caissons—right (or *left*) *wheel.*

These batteries move into the new direction at the command and under the conduct of their respective chiefs.

9. If it be desirable to change the direction of the column, to face to the side opposite to that of its march, after having halted the column, the commandant in chief commands,

1. *Attention.* 2. *Countermarch.* 3. MARCH.

At the second command, the chiefs of batteries give the orders prescribed for the countermarch, in the School of the Battery, No. 81.

At the word MARCH, repeated by all the chiefs of batteries, the movement is executed in each, as has been explained; only, each column of pieces makes immediately its two changes of direction to the left; each column of caissons passes near that of the caissons of the battery which precedes it.

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10. 3d. *To halt the Column.*

The commandant in chief commands,

1. *Attention;* 2. *Column;* 3. HALT;

as in the School of the Battery.

ARTICLE SECOND.

11. *Being in Column of Sections or Half-Batteries, marching Right in Front, to form Column of Batteries.*

The commandant in chief commands,

1. *Attention.* 2. *Form batteries.* 3. MARCH.

At the word MARCH, the chief of the first battery causes it to form line according to the principles established in the School of the Battery, Nos. 21 and 23. The line of caissons takes its distance of the length of a piece from the line of pieces.

The other batteries continue to march in column of sections or half-bat-

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teries.* When the head of the second battery has arrived at the distance which should separate it from the first, it takes the pace from it, and immediately after forms its line at the command of its chief.

The third and fourth batteries are formed successively in the same manner as the second.†

If the left be in front, the manœuvre is similar.

In case the commandant in chief wishes to form the column of batteries, and halt it, which is more convenient for foot-artillery, he will send an order to that effect to the chief of the first battery, who, after having formed it, halts and aligns it by the left.

The other batteries govern themselves by the first, and halt at their respective distances.

ARTICLE THIRD.

12. *Being in Column of Batteries on a March, Right in Front, to break into Column of Half-Batteries or Sections.*

The commandant in chief commands,

1. *Attention.* 2. *Break into half-batteries* (or *sections.*‡) 3. MARCH.

At the word MARCH, the chief of the first battery causes it to break off, as has been prescribed in the School of the Battery, Nos. 27 and 29.

The other batteries continue to march, and, when they have arrived on the ground where the first was broken, they execute in succession their movement on the same principles and by the same commands as the first.§

PART III.

DIFFERENT METHODS OF PASSING FROM COLUMN INTO LINE, OR INTO BATTERY.

ARTICLE FIRST.

Being in Column of Sections or Half-Batteries, to form in Line, or in Battery.

FIRST CASE. *Having the Right or Left in Front.*

1*st.* To the Front.	3*d.* On the Right (or on the Left.)
2*d.* To the Left (or Right.)	4*th.* Faced to the Rear.

SECOND CASE. *Having the centre Sections or Half-Batteries in Front.*

1*st.* To the Front.	3*d.* Faced to the Rear.
2*d.* To the Right (or Left.)	

* In foot-artillery, they quicken the pace, and in horse-artillery, they trot.

† In foot-artillery, it is necessary to slacken the pace of the head of the column *very much*, in order that all the batteries may form and close to their proper distances. The commandant in chief cautions the chief of the first battery to do this.

‡ In horse-artillery, he adds, *Head of column—trot.*

§ In foot-artillery, all the broken batteries quicken the pace, until the last has completed its movement. Then the commandant in chief cautions the head of the column to resume the ordinary pace. In horse-artillery, he commands, *Walk*—MARCH.

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First Case. *Being in Column of Sections or Half-Batteries, on a March, Right in Front.*

13. 1st. *To form to the Front in Line (or in Battery.)*

The commandant in chief commands,

1. *Attention.* 2. *Front into line* (or *into battery.*) 3. March.

The chief of the first battery, having repeated these commands, causes them to be executed as has been prescribed in the School of the Battery, Nos. 35, 36 and 57.

At the word March, the chiefs of the second, third and fourth batteries command,

Head of column—left wheel.

Each battery, thus forming a partial column, directs its march diagonally about two hundred paces in rear of the point which its right is to occupy on the line, where having arrived, its chief commands,

Head of column—right wheel.

When each is in this new direction perpendicular to the line, it is formed *in line*, or *in battery*, as the first.

14. 2d. *To form to the Left in Line (or in Battery.)*

The commands indicated in the School of the Battery, Nos. 41, 43, and 57, are here given by the commandant in chief, and repeated by the chiefs of battery. The movement in each battery is executed in exactly the same manner.

15. 3d. *To form on the Right in Line (or in Battery.)*

The commandant in chief commands,

1. *Attention.* 2. *On right into line* (or *into battery.*) 3. March.

At the word March, the chief of the first battery forms it according to the principles already explained in the School of the Battery, Nos. 48, 49, and 57.

The other batteries continue to march forward, changing the guide to the right, and are formed successively by the commands of their respective chiefs.

16. 4th. *To form faced to the Rear in Line (or in Battery.)*

The commandant in chief commands,

1. *Attention.* 2. *Into line* (or *into battery*)—*faced to the rear.* 3. March.

At the second command, the chief of the first battery gives the commands prescribed in the School of the Battery, Nos. 50, 51, and 58, to prepare for the movement.

At the word March, the first battery executes its movement as has been explained.

The other chiefs of batteries command,

Head of column—right wheel.

Each battery, thus forming a partial column, directs its march diagonally about two hundred paces from the point which its right is to occupy on the line, where having arrived, each chief commands,

Head of column—left wheel,

and then forms his battery as has been said above for the first.

These different formations are executed, when the left is in front, by similar means and words of command.

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SECOND CASE. *Being in Column on centre Sections (or Half-Batteries.)*

17. 1st. *To form to the Front in Line (or in Battery.)*

The commandant in chief commands,

1. *Attention.* 2. *Front into line* (or *into battery.*) 3. MARCH.

At the second command, the chiefs of the second and third batteries order,

Front into line (or *into battery*)—*guide left* (or *right;*)

the chief of the first commands,

Head of column—right wheel;

the chief of the fourth,

Head of column—left wheel.

At the word MARCH, repeated by the chiefs of battery, the movement is executed as directed in No. 13, (Evolutions.)

18. 2d. *To form to the Left and on the Left in Line (or in Battery.)*

The commandant in chief commands,

1. *Attention.* 2. *To the left and on the left into line* (or *into battery.*) 3. MARCH.

At the second command, the chiefs of batteries give the orders indicated in the School, of the Battery, Nos. 41, 43, 48, 49, and 57. At the command MARCH, the movement is executed in a manner analogous to what has been prescribed in the School of the Battery.

The same formation may be made in like manner to and on the right.

19. 3d. *To form faced to the Rear in Line (or in Battery.)*

This movement being impracticable by the method indicated for the column formed on one of the flanks, must be performed by inversion.

The commandant in chief commands,

1. *Attention;* 2. *By inversion—into line* (or *into battery*) *faced to the rear;* 3. MARCH;

and the movement is executed as has been said above, in No. 17, and in the School of the Battery, No. 58.

This inversion may be avoided, by previously executing a countermarch of the whole column, and then deploying it on the subdivisions of the centre, either by forming to the front into line, in a manner analogous to what has been stated in the School of the Battery, or by deploying from a halt on the subdivision of the centre.

ARTICLE SECOND.

Formations which are executed by combining two Movements.

FIRST CASE. *Column of Sections, (or of Half-Batteries,) on a March, Right in Front, to form in Line (or in Battery) on any given Subdivision.*

20. 1st. *To form to the Front in Line, (or in Battery,) on the first Section (or Half-Battery) of the second Battery, for example.*

The commandant in chief commands,

1. *Attention.* 2. *On first section* (or *half-battery*) *of second battery—front into line* (or *into battery.*) 3. MARCH.

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At the second command, the chief of the first battery orders,

Pieces and caissons—right wheel.

The chief of the second battery gives the commands prescribed in the School of the Battery, Nos. 35, 36, 57, for forming to the front *in line* or *in battery*.

At the word MARCH, repeated by the chiefs of the first and second batteries, the chiefs of the third and fourth batteries give the commands and execute the movements, which have been detailed in No. 13 for these batteries.

The second battery forms to the front.

When the first has marched about twenty paces, the chief of this battery commands,

Pieces and caissons—right wheel—MARCH;

and forms his battery *in line in retreat*, on the line of the second, if the formation be *in battery*, and twenty paces, at least, in rear of that line, if the formation be *in line*.

In the last case, the chief of the first battery commands,

Pieces and caissons—left-about wheel—MARCH;

and this battery halts, and dresses on the second.

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21. 2d. *To form faced to the Rear in Line (or in Battery.)*

The commandant in chief commands,

1. *Attention.* 2. *On first section* (or *half-battery*) *of second battery—into line* (or *into battery*) *faced to the rear.* 3. MARCH.

At the second command, the chief of the second battery gives the cautionary command, *Into line faced to the rear;* and, at the word MARCH, the commands of execution prescribed in the School of the Battery, Nos. 50, 51, and 58.

At the word MARCH, the chief of the first battery commands,

Head of column—left wheel;

the chiefs of the third and fourth command,

Head of column—right wheel;

and cause them to execute what has been prescribed for *into line faced to the rear*, No. 16.

The whole of the first battery having moved into the new direction, it is formed *left wheel into line*, (or *into battery*,) and is dressed on the second.

SECOND CASE. *The Head of the Column having changed its Direction, to form Line, before the whole Column is in the new Direction.*

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22. 1st. *To form to the Left and Front, in Line (or in Battery.)*

At the moment when the two first batteries (for example) have entered the new direction, the commandant in chief commands,

1. *Attention.* 2. *Left and front into line* (or *into battery*.) 3. MARCH.

At the second command, the chiefs of the first and second batteries order,

Left into line (or *into battery*)—*wheel.*

The chief of the third battery commands,

Front into line (or *into battery*)—*guide right.*

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At the word MARCH, repeated by the chiefs of the first, second and third batteries, the chief of the fourth commands,

Head of column—left wheel.

The movements are executed as in Nos. 13 and 14.

23. 2d. *To form to the Left, and faced to the Rear, in Line (or in Battery.)*

The commandant in chief commands,

1. *Attention.* 2. *Left and faced to the rear—into line* (or *into battery.*) 3. MARCH.

At the second command, the chiefs of the first and second batteries order,

Left into line (or *into battery*)—*wheel.*

The chief of the third battery commands,

Into line (or *into battery*)—*faced to the rear.*

At the word MARCH, repeated by the chiefs of the first and second batteries, the chief of the third gives all the commands prescribed in the School of the Battery, Nos. 50, 51, and 53.

The chief of the fourth battery commands,

Head of column—right wheel;

and the rest is executed as in Nos. 14 and 16.

To execute the formation to the left and front, the change of direction must be to the right, and the contrary for the formation to the left and faced to the rear. The reverse is the case when the left is in front. In other respects, the formations in this last case are executed in a similar manner.

ARTICLE THIRD.

Being in Column of Batteries, Right in Front, at a Halt, to deploy.

1*st.* To the Front.	3*d.* To the Right.
2*d.* To the Left.	4*th.* Faced to the Rear.

24. 1st. *To deploy to the Front on the second Battery (for example.)*

The commandant in chief commands,

1. *Attention.* 2. *Deploy on second battery.* 3. MARCH

At the second command, the chief of the first battery orders,

Pieces and caissons—right wheel;

the chief of the second battery,

Battery—forward—guide right;

the chiefs of the third and fourth batteries,

Pieces and caissons—left wheel.

At the word MARCH, repeated by the chiefs of batteries, the movements are executed, and the batteries thus gain ground toward the flanks, as has been directed in the School of the Battery, No. 68.

The left of the first battery having arrived abreast the point which it should occupy on the line, its chief commands,

Pieces and caissons—left wheel—MARCH;

then,

Forward—guide left.

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The third and fourth batteries having also arrived, the right of each abreast the point which it should occupy on the line, the chiefs of these batteries command,

Pieces and caissons—right wheel—MARCH;

then,

Forward—guide right.

All these batteries arrive in succession on the line where the second has been established, and align themselves on it.

In this deployment, care must be taken to establish the line at least thirty paces in front of the first battery.

If the left is in front, the movements and commands are similar.

25. If it be desirable to deploy the column *on the alignment of one of the batteries*, the batteries in front of it are the only ones which have different movements to execute: for example, to deploy the column in this manner on the second battery,

The commandant in chief commands,

1. *Attention.* 2. *Deploy on second battery—halted.* 3. MARCH.

The line of pieces of the named battery should advance the length of a piece: all the other batteries move out of the column towards the flanks: when the first has marched far enough to the right, it marches *in retreat* until it is beyond the alignment determined by the second battery; then, its pieces and caissons having wheeled to the left-about, it is aligned on the left. The third and fourth batteries manœuvre as above stated.

26. 2d. *To form on the left Flank.*

The commandant in chief commands,

1. *Attention.* 2. *By rear of column—left into line.* 3. MARCH.

At the second command, the chiefs of the first, second and third batteries caution them to continue to march forward.

The commandants of caissons of these batteries command,

Caissons—forward—trot.

At the word MARCH, repeated by the commandants of caissons, the lines of caissons close on those of the pieces. The chief of the fourth battery halts his battery, and soon after causes it to change front to its left flank, as has been prescribed in the School of the Battery, No. 75.

As soon as the third battery has left in its rear sufficient space for the fourth to form, besides the interval, twice the length of a piece, which should separate these two batteries, the chief of the third causes it to execute the same movements as has been explained for the fourth.

It is the same for the other batteries.

When the left is in front, similar means are used to form line to the right.

27. 3d. *To form on the right Flank.*

The commandant in chief commands,

1. *Attention.* 2. *By rear of column—by inversion—right into line.* 3. MARCH.

This manœuvre is executed on the same principles as the preceding, but by contrary movements.

28. The natural order is resumed either by breaking into sections or half-batteries to the left, and forming batteries; or by breaking at once into batteries to the left.

29. 4th. *To deploy to the Rear on any given Battery.*

The commandant in chief will cause a countermarch to be made, and the manœuvre is then reduced to a deployment to the front, as in the first case.

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30. The formations *in battery* to the front, to the rear, and on the flanks, are made by means exactly similar to those which have been explained for forming *in line*.

In the first and second cases, the commandant in chief commands,

Deploy on ..... battery, in order to fire.

In the other cases, the command *in battery* is substituted for *in line*.

Each battery effects its movement with the greatest possible promptitude.

PART IV.

TO MARCH IN LINE; CHANGE DIRECTION; PASS AN OBSTACLE; HALT, AND DRESS THE LINE; TO MARCH BY A FLANK; TO PASS A DEFILE; TO FORM IN BATTERY; AND TO EXECUTE THE DIFFERENT CHANGES OF FRONT.

ARTICLE FIRST.

To march in Line; change Direction; pass an Obstacle; halt, and dress the Line.

31. 1st. *To march in Line.*

The batteries being correctly aligned, the commandant in chief indicates to the chief of the regulating battery the point on which his battery should direct its march, and commands,

1. *Attention.* 2. *Batteries—forward.* 3. *Regulate on ..... battery.* 4. MARCH.

At the third command, the chief of the designated battery commands,

Guide right, or left,

according as it constitutes a part of the right or left division. The chiefs of the other batteries name the guide on the side towards which they are to dress.

At the word MARCH, repeated by the chiefs of batteries, the whole line moves forward.

32. 2d. *To change the Direction of a Line of Batteries, while marching.*

The commandant in chief executes the change of front on one of the flanks, by the means and commands which will be herein prescribed, No. 41.

33. 3d. *To pass an Obstacle.*

If an obstacle present itself before a piece, section, or half-battery, it is passed according to the principles in the School of the Battery, No. 65.

If the obstacle present itself before a battery, it moves in rear of the battery of its division, which remains in line, breaking by sections to the right or left into column. After the obstacle is passed, the piece, section or half-battery will resume its place in line by the means prescribed.

When marching in retreat, an obstacle is passed by the same means.

34. 4th. *To halt and dress the Line.*

The commandant in chief commands,

1. *Attention* 2. *Batteries.* 3. HALT. 4. *On ..... battery*—DRESS.

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The chiefs of batteries repeat the three first commands: at the third, the batteries halt; and at the fourth, the regulating battery dresses to the right, if it belong to the right division, and to the left, if to the left division. The other batteries dress towards the one named. The chiefs of batteries, except the one of the named battery, move to the flank of their batteries, opposite the side on which they are aligned.

In order to give more accuracy to the alignment, it may be made by sections, as in No. 67 of the School of the Battery.

ARTICLE SECOND.

35. *To march by a Flank, in order to gain Ground to the Right, or to the Left, and to change Direction.*

The manœuvres are the same as in the School of the Battery, Nos. 68 and 69.

ARTICLE THIRD.

Passage of a Defile to the Front and in Retreat.

36. To pass a defile to the front, the line, marching or at a halt, is broken by one of its flanks, or by a central section, according to the position of the defile. But if the defile, presenting itself before a central battery, (the third for example,) can be passed only by sections, it will then be necessary to break by the second section of the third battery, as in the School of the Battery, No. 6. The second and third batteries break by pieces, in order to unite in double column in rear of the third, and the first arranges itself in column of sections in rear of the others. In this case, the commandant in chief will command,

On second section of third battery—to the front—pass the defile.

This column will again be brought into line as soon as the batteries have cleared the defile, by the same commands and similar means as in the School of the Battery, No. 53: the second and first change direction to the right, and form successively on the left into line: the fourth changes direction to the left, and forms on the right into line.

Whatever may be the formation of the column, it is preferable, when the ground in front of the defile will permit, to advance the head of the column so far as to form the whole line by a simultaneous movement.

37. The passage of the defile, *in retreat*, when it is not necessary to cover the retreat by a part of the line, is effected in the same manner as that to the front, by the flank nearest the defile. But, if the passage be made under the fire of an enemy, the opposite flank must break off while the rest of the line covers the movement by its fire.

38. In either case, if the defile be in rear of a central battery, (the third, for example,) the commandant in chief will first cause the first battery to break by its first section in retreat into column, and then will cause the other batteries to execute the movement prescribed in the School of the Battery, No. 72, for passing the defile in retreat by the two flanks. The second and fourth batteries break, by pieces, in retreat, and join in double column in rear of the third, which breaks as directed in the School of the Battery.

As soon as each battery clears the defile, its chief conducts it, and forms it opposite the place it occupied before passing the defile.

In this particular case, the first battery coming out of the defile changes its direction to the left, marches, in column of sections, in retreat, to the place it is to occupy in the line, and forms in battery by wheeling by sections to the right;

The second makes a similar movement by pieces;

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The fourth changes direction to the right, and forms in battery by wheeling to the left;

The third deploys, as in the School of the Battery, No. 72.

In coming out of the defile, the caissons move directly on the line they are to occupy, so as to be opposite their respective pieces.

ARTICLE FOURTH.

39. *Being in Line, marching or halted, to form in Battery.*

This manœuvre is the same as in the School of the Battery, No. 74.

ARTICLE FIFTH.

Changes of Front, in Line or in Battery.

Being in line at a halt, three different changes of front may be executed, as in the School of the Battery; but they are all three included in the central change of front, which is about to be explained.

40. *Central Change of Front, on the Right of third Battery, (for example, to face to the Right.)*

The commandant in chief commands,

1. *Attention.* 2. *Change front on first section of third battery, left wing forward.* 3. MARCH.

At the second command, the chief of the third battery will order,

Change front forward on first section;

the chiefs of the first and second batteries,

Pieces and caissons—left-about wheel;

the chief of the fourth,

On first section—front into column.

At the word MARCH, repeated by the chiefs of batteries, the movement ordered for each will be executed.

The third forms on the line, on the principles in the School of the Battery, No. 75.

As soon as the second is in motion, its chief commands,

Battery—right wheel.

When the line of caissons has executed its wheel on a movable pivot, inclining strongly to the right, the line of pieces wheels over the same ground. These pieces, after having passed the alignment of the third battery, are again brought upon this line by the commands,

Pieces and caissons—left-about wheel—MARCH. *Halt. Left dress.*

The fourth battery, after breaking into column, moves to its front, until its first piece is abreast the place it should occupy in the new line, then changes its direction to the right, and, when its whole column is in the new direction, forms line to the front;

The first breaks on its third section into column in retreat, and moves to the rear in such manner as to arrive, perpendicularly to the line, at the point on which its sixth piece is to rest. The head of the column having arrived on this line, the chief of the first battery commands,

In retreat—into line—MARCH. *Pieces and caissons—left-about wheel*—MARCH. *Halt. Left dress.*

This central change of front is the same on whatever battery it may be executed

41. To change front on the right flank, to face to the right, the first bat-

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tery executes what has been prescribed for the third, and the others what has been directed for the fourth. To face to the left, the first changes front to the rear, and the others conform to what has been detailed for the first in the preceding example.

In a central change of front, the battery next the pivot always changes its front by wheeling to the front or to the rear without breaking into column.

PART V.

BEING IN BATTERY, TO EXECUTE THE DIFFERENT FIRES.

42. 1st. *To fire advancing.*

It is often useful to advance one part of the line, while the other remains at its first position to cover the movement.

To advance by the right of the line, the commandant in chief commands,

1. *Attention.* 2. *Fire advancing by batteries.* 3. *First battery*— COMMENCE THE MOVEMENT.

At this command, the chief of the first battery causes it to cease firing, and moves forward to renew the fire, as quickly as possible, in the new position, which has been designated by the commandant in chief. During the movement, the other batteries continue to fire, and the pieces towards the right fire somewhat obliquely to the left, so as not to incommode the battery which has advanced.

As soon as the first battery has gained its new position, and has opened its fire, the second commences its movement, and advances the same *distance* as the first, and so on.

When the fourth is established to the front, the movement recommences in the same manner by the left.

To fire advancing by divisions, is executed in a similar manner.

43. 2*d*. *To fire retreating by Batteries.*

This is executed in a manner similar to what has been said in the Schoo of the Battery, No. 85, for firing in retreat by half-batteries.

44. 3*d*. *To fire to the Rear.*

This is executed by the whole battery, or only a part of it, by commands of the commandant in chief, as in No. 89, School of the Battery.

45. If it be necessary to fire, at the same time, to the front, to both flanks, and to the rear, the batteries may be formed in a square, on any given point of the line: if (for example) on the third battery, the second and fourth change front to the rear, in order to place themselves perpendicularly to the third; the first breaks on the third section in retreat, and moves to the rear, to close the square, forming, *by sections on the right, in retreat into line.*

The square may be formed on any other battery by similar means.

The line is re-formed by inverse means, after having brought the pieces and caissons to the left-about.

In like manner, the square may be formed from column of sections, on any given battery, (for example, the second:) this battery forms *to the front into battery;* the first wheels by pieces and caissons to the right, unmasks the column, and forms perpendicularly to the second, *by sections on the right, in retreat, into battery;* the third continues to march forward, and then forms, *by sections, left wheel into battery;* and the fourth, after having gained ground to the left, forms *into battery faced to the rear.*

END.

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